VOLUME XXII NUMBER 11 NOVEMBER, 1941

DEFENSE HOUSING

HARBOR HILLS HOUSING — *CLARENCE S. STEIN* — 677

YESLER TERRACE HOUSING — *J. LISTER HOLMES* — 684

WORKING WITH USHA UNDER THE LANHAM ACT — *ANTONIN RAYMOND* — 690

LINDA VISTA—AMERICA'S LARGEST DEFENSE HOUSING PROJECT — *DONALD S. CAMERON AND GERARD T. BEECKMAN* — 696

FARM SECURITY ARCHITECTURE—AN APPRAISAL — *TALBOT F. HAMLIN* — 709

BANTAM, CONNECTICUT—AMERICA'S SMALLEST DEFENSE HOUSING PROJECT — *ROBERT I. HOYT* — 721

INDIAN HEAD EXPERIMENT IN PREFABRICATION—AN ANALYSIS — *FREDERICK GUTHEIM* — 724

ARTICLES

IS HIGH EXPLOSIVE THE GREATEST DANGER? — *SERGE CHERMAYEFF* — 725

WASHINGTON REPORT — *A. D. TAYLOR* — 727

THRESHING FLOOR

LETTERS AND SUGGESTIONS RECEIVED FROM READERS IN RESPONSE TO RECENT "COOPERATIVE EDITORIAL QUIZ" — *10*

PUBLIC RELATIONS

FORUM — EDITED BY *D. KNICKERBACKER BOYD* — 733

CONSTRUCTIVE REVOLUTION FOR ARCHITECTS — *CARLTON K. MATSON* — 735

DATA SHEETS PREPARED BY *DON GRAF*

LIGHTNING PROTECTION FOR TREES (1 AND 2); CABINETWORK ESSENTIALS; ELLIPSE AND PARABOLA — 729

HERE, THERE, THIS, AND THAT

NEWS FROM THE FIELD, BOOK REVIEWS, ETC. — *40*

COVER PHOTOGRAPH BY *ERNST KASSOWITZ* OF YESLER TERRACE HOUSING

PENCIL POINTS

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WHAT GOES ON HERE?

EDITORIAL COMMENT BY KENNETH REID

As we pointed out on this page a year ago, the experience of the English building industry indicated strongly the desirability—from both its own point of view and that of its country's defense—of establishing a single powerful government authority combining "comprehensive factual knowledge of the building industry's resources, the power to keep them replenished against future demands, and the duty of allocating them as needed by the several Service and Supply Departments." The British finally created such an authority after many needlessly lost months of confusion. Today, we are told, all British architects and other building industry workers are busy. We have not yet acted.

The OPM has, perhaps naturally, been concerned with the relatively closely-organized manufacturing industries. None of its divisions has so far apparently appreciated the importance of the building industry *as a unit* for defense—or if it has, there has been no power delegated to coordinate and organize the industry's resources in accord with any well developed plan. One of the results is the recent S.P.A.B. order denying priorities to non-defense construction and threatening thousands of workers, including architects, with loss of employment. Was this drastic step necessary?

It is high time that intensive study should be given to the problem—but it won't be given unless someone in government is intelligent enough to realize its significance and is granted authority to act. Advisory committees or individuals loosely fastened to the outskirts of OPM won't work. There should be an office co-equal with other OPM divisions and this office should have both understanding of the building industry and authority to maintain it as a going concern. To permit its even partial disintegration is a disservice to the nation.

F.S.A. DESIGNERS

The presentation on pages 709-720 of the work of the designers of the Farm Security Administration communities is of exceptional interest as representative of what can be accomplished by thoughtful and ingenious men relieved of some of the restrictions imposed elsewhere by building ordnances and codes. Furthermore, building as they did in open country, the cost of land was not a hampering influence on planning. This work may, therefore, reasonably be considered as pointing toward possibilities for the future when building codes will generally be brought up-to-date and land values in urban communities may be readjusted in accord with rational public interest.

The work shown comes from one district only. This is no reflection on the merit of F.S.A. work in other sections of the country which, though possibly less spectacular, is nonetheless being done with the same intelligent attitude of mind. Credit should be given to the personnel of District Six, San Francisco, comprising the following: Herbert P. Hallsteen, District Engineer; *Architects* Burton Cairns, Vernon DeMars, Lucien Stark, William Edie, Arthur Steiner, Howard Sweeting, Robert Williams, and Frank Thompson; *Landscape Architects* Garrett Eckbo and Milton Butts; *Engineers* Nicholas Cirino, John Clark, Harry Donaldson, Edward Kelly, Eion McKay, Winsor Wilkinson, John Raymond, Gunnar Halle, Harold Edelstein, George Davis, and Allen Crenshaw; *Construction men* Granville Shumaker, C. E. Torkelson, and Armond V. Cox.

The whole of this organization is under the direction of John Donovan, *Chief Engineer*, Washington, D. C.

PUBLIC RELATIONS

Special attention is called to the article by Carlton K. Matson, on page 735. Perhaps some word is needed to establish Mr. Matson's qualifications for telling the architectural profession some of the things it could do for itself. As a former chief editorial writer for the *Cleveland Press* and former Editor-in-Chief of the *Buffalo Times* and of the *Toledo News-Bee*, he may be granted an authoritative voice on the importance of careful use of language to influence public opinion. As a former Public Relations Director for the Libbey-Owens-Ford Glass Company, he had plenty of opportunity to study the nature of the architect and his practice. At present he is a member of the firm of Martin Dodge and Carlton K. Matson, Public Relations Counsellors, New York. He knows his stuff!

Spence Air Photos

FOLLOWING THE CONTOURS, THE ARCHITECTS EVOLVED A VARIED ARRANGEMENT OF BUILDINGS, OF WHICH THE CHEVRON PATTERN IS A PROMINENT FEATURE. FOUR COMBINATIONS OF COLORS OF INTEGRAL PIGMENT ON THE EXTERIORS GIVE THE BUILDINGS A PLEASING EFFECT. THE PLANTING OF TREES, SHRUBBERY, AND GRASS WILL SOFTEN THE STRAIGHT LINE EFFECT, HELP TO MERGE THE BUILDINGS INTO THE LANDSCAPE

HARBOR HILLS HOUSING

WITH COMMENTS BY CLARENCE S. STEIN

An attractive site, developed with careful architectural design, has made Harbor Hills, a USHA housing project sponsored by the Housing Authority of the County of Los Angeles, one of the most attractive of the public housing developments in the country. Architects on this project were Reginald D. Johnson, Chief Architect; Donald B. Parkinson, Eugene Weston, Jr., Lewis Eugene Wilson, and A. C. Zimmerman, Associates. Clarence S. Stein was Consulting Architect. Landscape architects were Katherine Bashford, and Fred Barlow, Jr.

LOCATION. Harbor Hills is situated in the picturesque San Pedro Hills in California, overlooking San Pedro Bay, one of the great centers of defense activities.

TENANTS. In spite of the closeness to the expanding industrial area of San Pedro, where there are thousands of workmen who cannot find decent homes, Harbor Hills is renting slowly. The defense workers are unable, for economic reasons, to use these houses that the Government has just finished. Their wages are not too small—they are too high. USHA regulations limit the income of those who may dwell in housing built with USHA funds to low income workers. (In the case of the County of Los Angeles, those receiving $1,500 a year or less. Defense workers of the San Pedro district are receiving far more than that).

So, although Harbor Hills is having difficulty securing sufficient tenants to fill its attractive apartments, there are thousands of defense workers who can find no decent homes in the San Pedro area.

SITE PLAN. Much of the site is in deep canyons or gullies, and only 27 acres out of 102 acres could be used economically for housing. Buildings are grouped around large parking areas, 54 feet wide, with room for off-street parking for all of the tenants. Following the contours, the architects evolved a varied arrangement of the buildings in a chevron pattern, thus making the project a relief from the endless repetition of parallel rows of similar buildings that one has come to think of as "public housing."

EXTERIOR COLOR. Interesting note in this project is the variety in the texture and color of the buildings. Four combinations of colors of integral pigment have been used on the exteriors—green, apricot, white, and light sand, with a dado of darker tone giving base to the buildings and a horizontal tie to the architecture. There is additional horizontal tie in the texture of the brick work connecting or forming the base to the long horizontal mass of the windows. There

Photos by W. P. Woodcock

BUILDINGS ARE GROUPED AROUND LARGE PARKING AREAS, 54 FEET WIDE. THERE IS ROOM FOR OFF-STREET PARKING FOR ALL OF THE TENANTS. THE SERVICE SIDES OF THE HOUSES FACE TOWARD THE PARKING SPACES. THESE "BACK YARDS", WHICH SEEM CROWDED AND DISORDERLY IN MOST OF THE LOW-COST HOUSING DEVELOPMENTS, HAVE HERE AN APPEARANCE OF ORDER, PARTIALLY DUE TO THE LOW WIRE FENCES THAT SEPARATE THE YARDS AND WHICH IN TIME PROBABLY WILL BE COVERED WITH VINES. THE LIVING-ROOM SIDES OF THE HOUSES FACE GRASS LAWNS. THE THIN EDGE OF THE PROJECTING ROOFS AND OF THE CONCRETE HOODS OVER THE ENTRANCES, THE MASSING OF THE LONG ROWS OF METAL WINDOWS, ALL GIVE THE PROJECT A DEFINITE AND ATTRACTIVE RESIDENTIAL CHARACTER. THERE IS VARIETY IN THE TEXTURE AND COLOR OF THE BUILDINGS, AS IN THEIR SITE ORGANIZATION. THE DETAILING HAS DELICACY, RESTRAINT

is a delicate contrast of this with the flat surface of the brick and concrete surface of the rest of the wall.

PLAN. Space has been well organized in most of the plan. Stairs separating the kitchen and living room permit privacy in the latter rooms, a condition which is impossible in the frequently-encountered two-story plan with stairs parallel to dividing walls.

Doors, windows, and closets have been placed with proper consideration of living and furnishing requirements. Kitchens are particularly charming with the spacious, well-lighted, dining space. Equipment even includes a tiled drain board which, to the eastern architects, seems luxurious.

The small apartments on the second story of the two-story flats are reached by an exterior stair with a long balcony giving access to the service side of the apartment. But this arrangement is still questionable from the point of view of privacy. The architects met this problem by arrangement of windows, and by placing the living rooms on the other side of the flats.

CONSTRUCTION. Walls of the buildings are of grout-lock brick masonry. Floors and roofs are of concrete, the latter consisting of a single slab which was poured on a plywood form. The slight slope of the roofs is apparent in the ceiling of the upper story rooms. Floors are cantilevered out to form balconies and entrance door hoods. Partitions are two-inch cement plaster on metal lath over steel studs. Floors have cement tops with integral color dusted in the slab. As yet there seems to have been no complaint by the tenants against the hard surface.

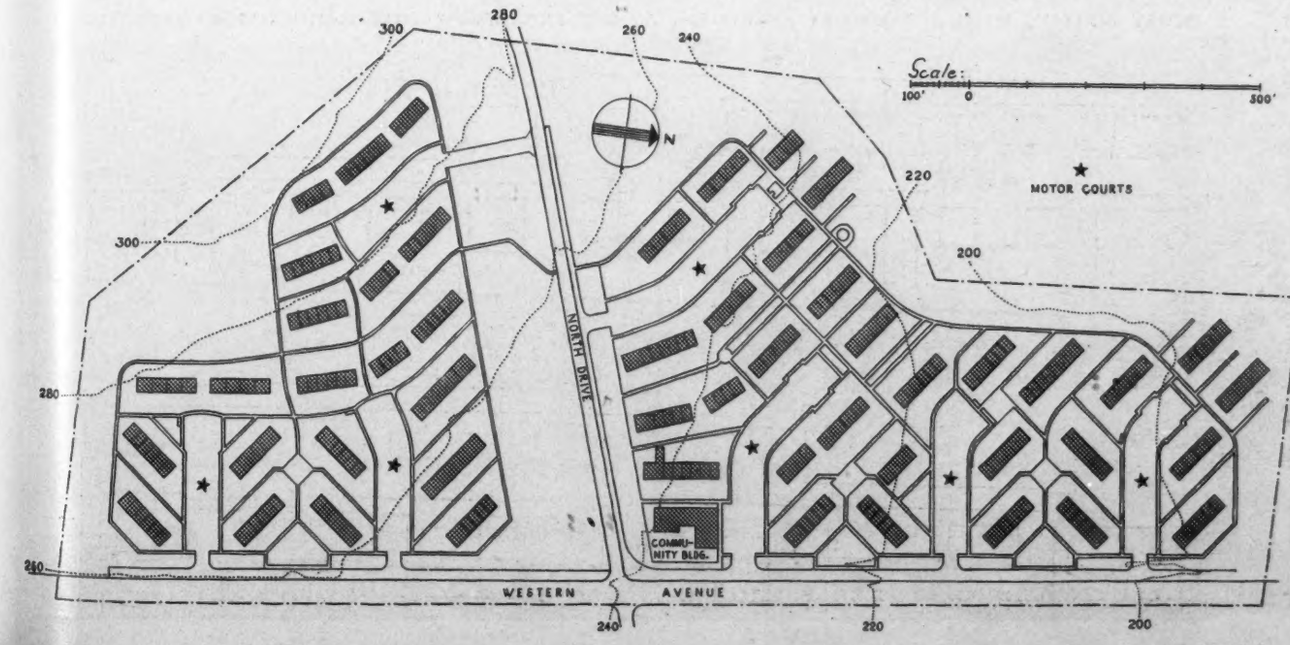
WINDOWS. Spacious windows supply adequate light and air to all the rooms and do not deprive them of necessary furniture space. Corner windows, which are generally questionable from the point of view of ventilation, are particularly successful in the dining room section of the kitchens where they permit broad views and sunny exposures.

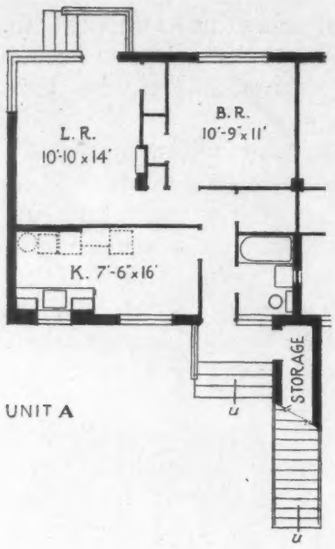
INTERIOR FINISH. Interior walls have a base coat of cement plaster, and all cement ceilings are painted. Kitchens, dining space, and bathrooms have a finished coat of Keene's cement and enameled paint. Other rooms have a finish coat of integral color with sand finish. Different colors have been used in the various rooms. The integral colored stucco is difficult to patch, and to protect the walls from damage a picture molding has been set into them.

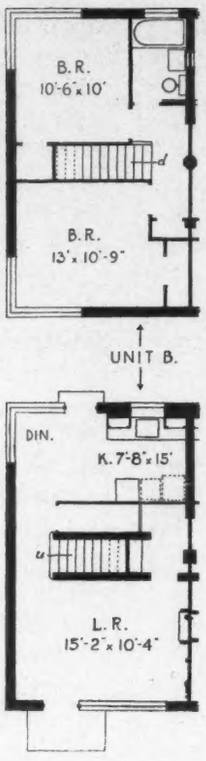
COMMUNITY EQUIPMENT. A small project such as Harbor Hills, with 300 family units, must be limited in the extent to which it can afford community equipment. Larger developments have the advantage of being able to afford more adequate and varied community space and service. Therefore, wherever it is practical, it would seem advisable to organize public housing in developments large enough to supply com-

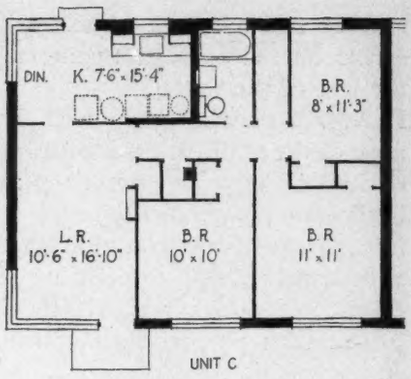
(Continued on page 683)

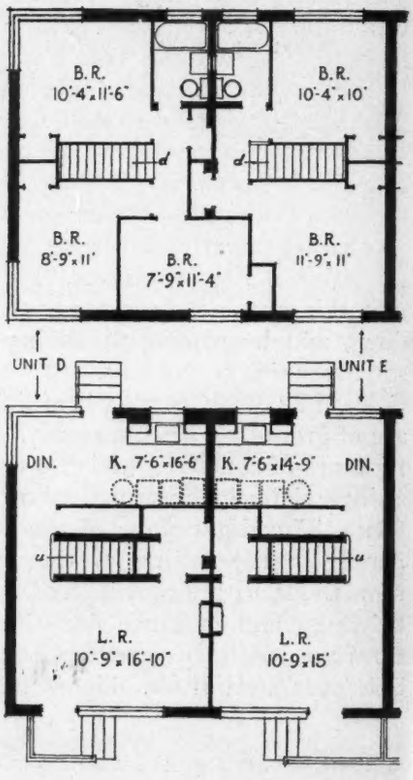
THE SITE CONSISTS OF 102 ACRES, MUCH OF IT IN DEEP CANYONS. BECAUSE OF THE HILLY TOPOGRAPHY ONLY A VERY LIMITED AREA COULD BE USED ECONOMICALLY. THE 52 BUILDINGS ARE ON 27 ACRES OF LAND



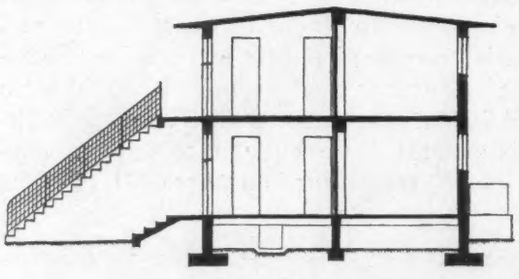




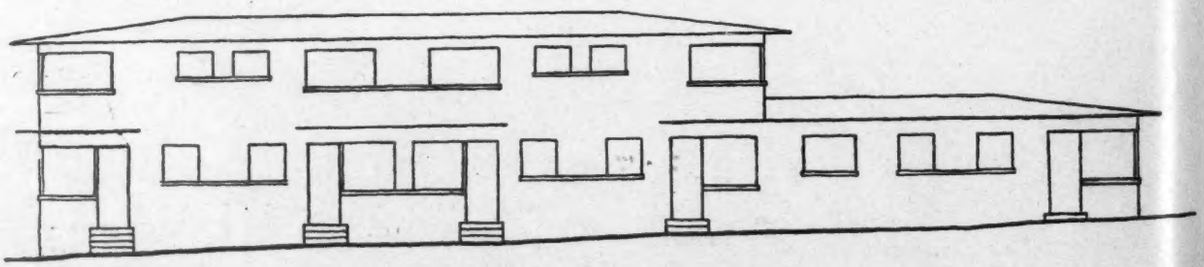


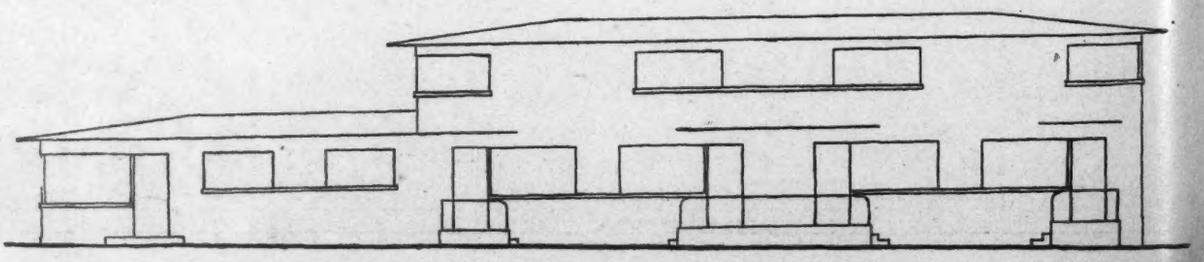


SPACE HAS BEEN WELL ORGANIZED IN MOST OF THE PLAN. IN UNITS A AND C THE ROOMS ARE ALL ON ONE FLOOR; ROOMS IN THE OTHER UNITS ARE ON TWO FLOORS. IN UNITS B, D, AND E, THE STAIRS SEPARATING THE KITCHEN-DINING AREA FROM THE LIVING ROOM PERMIT PRIVACY IN THE LIVING ROOMS. SMALL APARTMENTS ON THE SECOND STORY OF THE TWO-STORY FLATS ARE REACHED BY AN EXTERIOR STAIR (SEE CROSS SECTION) ON THE SERVICE SIDE



TWO TYPICAL ELEVATIONS ARE SHOWN BELOW. AT TOP IS THE SERVICE ELEVATION OF A COMBINATION TWO-STORY BUILDING WITH A ONE-STORY APARTMENT AT THE END. BELOW THAT IS THE GARDEN ELEVATION

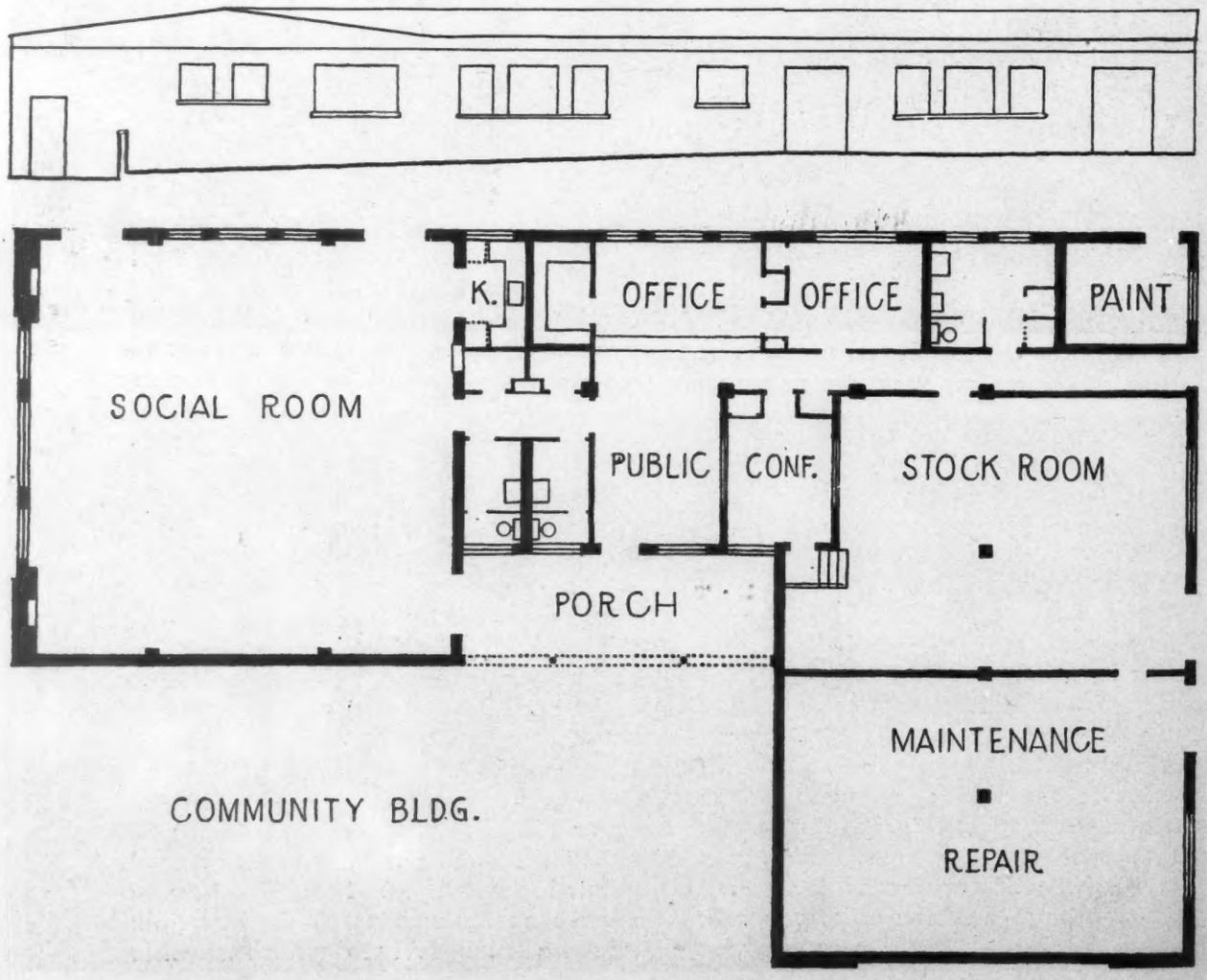




THERE IS A PLEASING VARIETY IN THE MASS OF THE BUILDINGS, PARTIALLY DUE TO THE WELL-PROPORTIONED ONE-STORY HOUSES ATTACHED TO THE TWO-STORY GROUPS. IN SOME UNITS, CONCRETE FLOORS ARE CANTILEVERED OUT TO FORM BALCONIES AND DOOR HOODS. THERE IS NO SLIPPERY ICE TO BE GUARDED

AGAINST IN LOS ANGELES COUNTY, SO ONE OF THE OBJECTIONS TO THIS SCHEME, WHICH EXISTS IN THE NORTH, IS NOT PRESENT HERE. THE ILLUSTRATION BELOW SHOWS THE STAIRS ON THE SERVICE SIDE

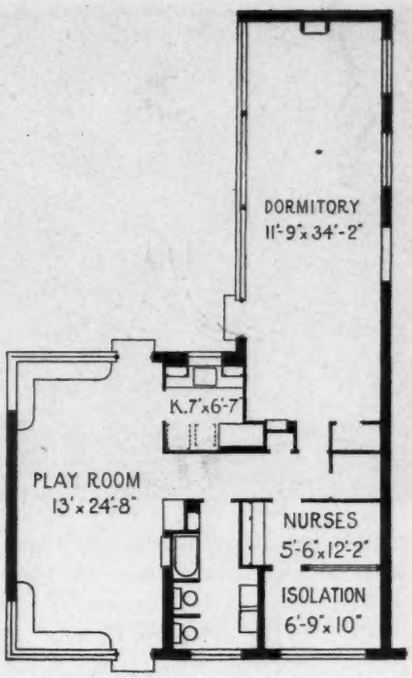
THE NURSERY SCHOOL (ELEVATION ABOVE, AND PLAN ACROSS-PAGE) HAS BEEN PLACED IN ONE OF THE TWO-STORY RESIDENTIAL BUILDINGS. THE SPRAY POOL FOR YOUNGSTERS, ADJACENT TO THE NURSERY, HAS A SHALLOW CONCRETE BASIN WITH SPRAYS IN SHELL-SHAPED CONCRETE BLOCKS. THE PLAN OF THE WELL-ARRANGED COMMUNITY BUILDING SHOWS THAT A GREATER PART OF THE BUILDING HAS BEEN DEVOTED TO ADMINISTRATION. THERE IS A PUBLIC OFFICE, MANAGER'S OFFICE, SPACE FOR WORKSHOP, STORAGE, AND GARAGE. THERE ARE NO CLUB ROOMS EXCEPT FOR THE SOCIAL ROOM, WHICH HAS A SMALL KITCHEN OFF TO ONE SIDE. BECAUSE OF THE SMALL AREA THAT COULD BE USED ECONOMICALLY AS A BUILDING SITE, THE COMMUNITY BUILDING AT HARBOR HILLS HAS NO PLAYGROUND ADJACENT TO IT. (ELEVATION BELOW)



(Continued from page 679)

munity equipment that can be administered with maximum economy.

COSTS. The approximate development costs covering the 300 dwelling units, nursery, and administration building, is $1,300,000. This is apportioned as follows: site acquisition, 1%; structures and equipment, 80%; site improvements (including grading, streets, paving, sidewalks, curbs, sewer system, electric system, gas system, water system, plus pumps, storage, pressure tank, etc.) 15%; landscaping, 2%; carrying charges, 2%. These items, except of course the carrying charges, include their proportions of overhead—administrative, architectural, and engineering costs. The over-all cost for the completed project is about $4,300 per dwelling unit. The average construction cost of the dwelling unit itself, exclusive of other costs, is about $2,750 per dwelling unit.



NURSERY

WALLS OF THE BUILDINGS ARE OF GROUT-LOCK BRICK MASONRY. FOUR COMBINATIONS OF COLORS OF INTEGRAL PIGMENT HAVE BEEN USED ON THE EXTERIORS: GREEN, APRICOT, WHITE, AND LIGHT SAND. A DADO OF DARKER TONE GIVES A BASE TO THE BUILDINGS AND A HORIZONTAL TIE TO THE ARCHITECTURE

Photo by DePue, Morgan & Co., Inc.

THERE ARE 700 BUILDING UNITS ON THE 43-ACRE YESLER TERRACE DEFENSE HOUSING SITE LOCATED JUST OUTSIDE THE SEATTLE BUSINESS DISTRICT. THE SITE HAS AN ABRUPT INCLINE TO IT, AND MAGNIFICENT OUTLOOKS OVER PUGET SOUND. IT IS BECAUSE OF THESE VIEWS, THE CLOSE PROXIMITY TO THE INDUSTRIAL AREA, AND THE RELATION OF THE UNITS TO SCHOOLS, HOSPITALS, AND PLAYFIELDS, THAT YESLER TERRACE MIGHT BE CONSIDERED THE OUTSTANDING SITE IN AMERICA FOR THE ERECTION OF SUCH A HOUSING PROJECT

YESLER TERRACE HOUSING

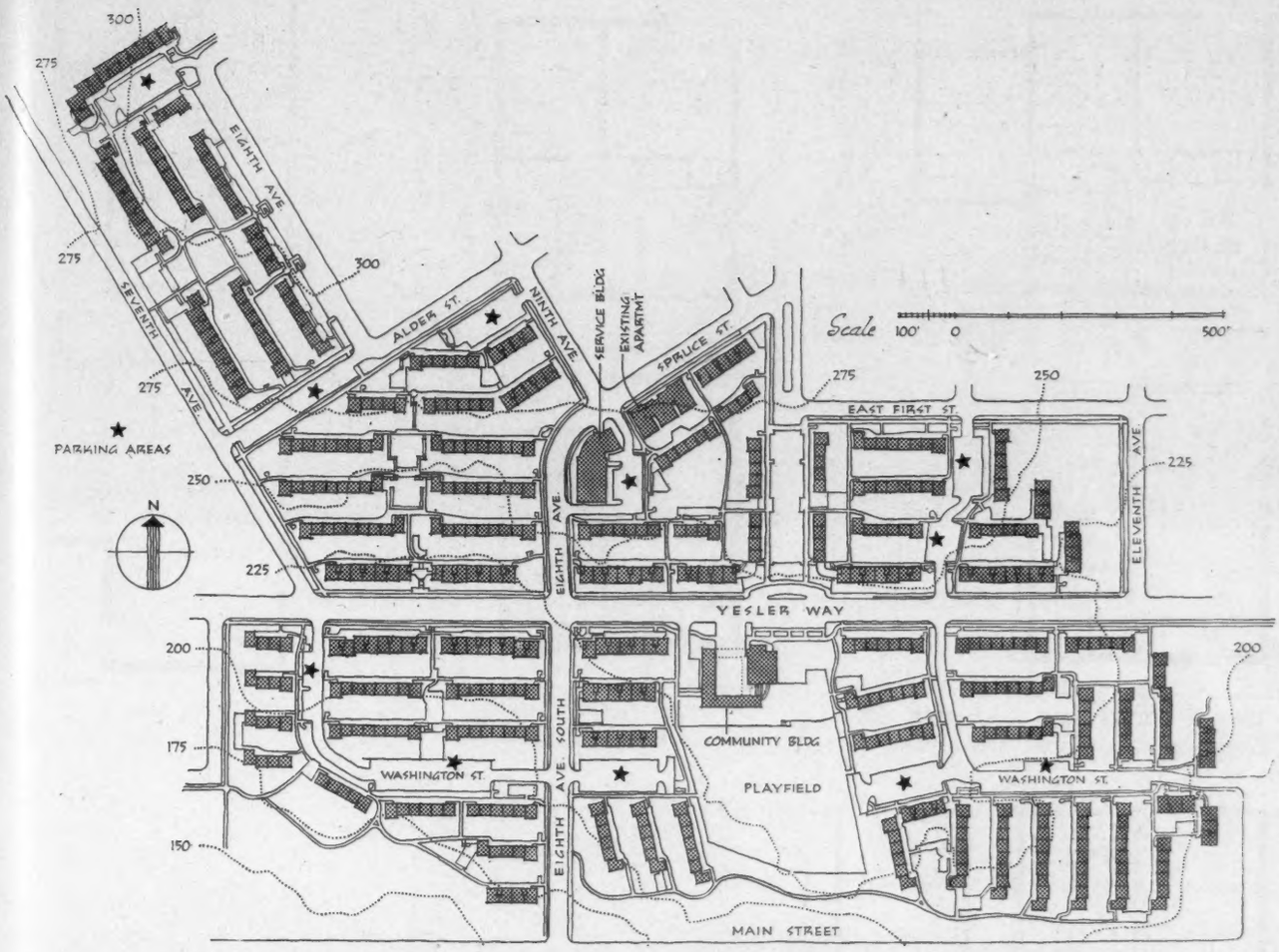
DESCRIPTIVE NOTES BY J. LISTER HOLMES

Occupying some forty-three acres on a hill immediately above the downtown business district of Seattle, Washington, is the Yesler Terrace Housing Project, sponsored, under USHA, by the Seattle Housing Authority, and designed by a group of architects comprising J. Lister Holmes, William J. Bain, John T. Jacobsen, William Aitken, and George W. Stoddard. Landscape Architects were E. Clair Heilman and Butler Sturtevant.

The location, also known as Profanity Hill because of the abrupt incline to it, has magnificent outlooks over Puget Sound. Because of these views, the close proximity of the industrial area, and the easy relation to schools, hospitals, and playfields, it is considered one of the outstanding sites in the country for a low rent housing project. Private enterprise had previously attempted to rehabilitate a large section of this district and found it impossible to finance.

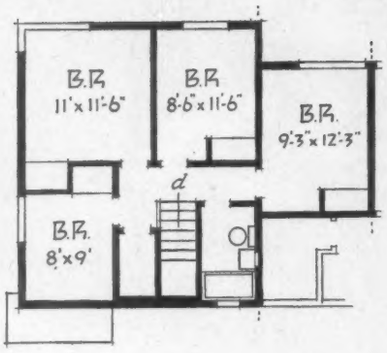
The land value of nearly $10,000 an acre is about thirty times the value of outlying areas being used for defense housing projects. This factor required an average ultimate density of 17.4 units per acre for the finished project of 878 units, which includes the additional 178 units now being drawn. The present project of 700 units does not have that population density.

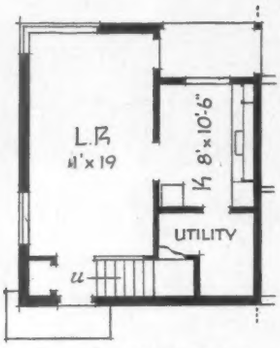
Another factor with which the architects had to contend was the fact that two power companies had distribution stations on the edge of the site, fairly lacing the district with high tension lines and poles. Moving these would be a costly item, hence designing around most of them was necessary. The architects did not like the thought of having small chimneys popping out of the roofs to throw smoke into the windows of the buildings above. With this in mind they investigated other possibilities, found that, because of the length of the buildings, it was feasible to design an economical central heating plant with forced hot water circulation. Estimates showed the operation of this plant would cost $2.50 less a unit per month than the next most economical method of heating. Despite rising construction costs, the architects report that the project will rent for a dollar less per unit than any other northern low-cost housing now constructed.



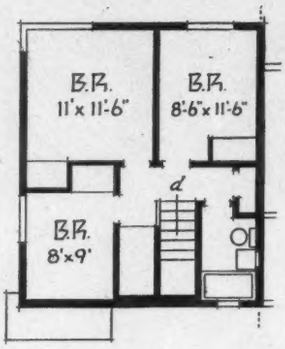
THE BUILDINGS WERE ORIENTED TO GIVE THE BEST EXPOSURE TO BOTH THE LIVING ROOM AND THE INDIVIDUAL GARDENS WHICH ARE PROVIDED. THE UNITS RANGE IN SIZE FROM 2½ TO 6½ ROOMS EACH

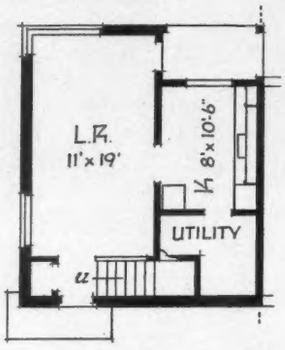
Photo by Ernst Kassowitz



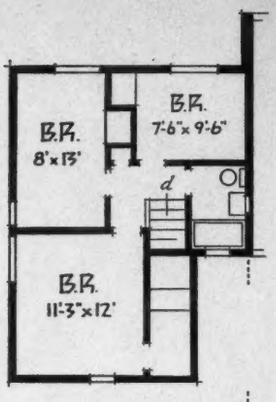


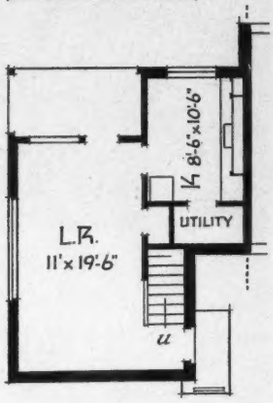
UNIT *A* HOUSES HAVE A KITCHEN, LIVING ROOM, FOUR BEDROOMS



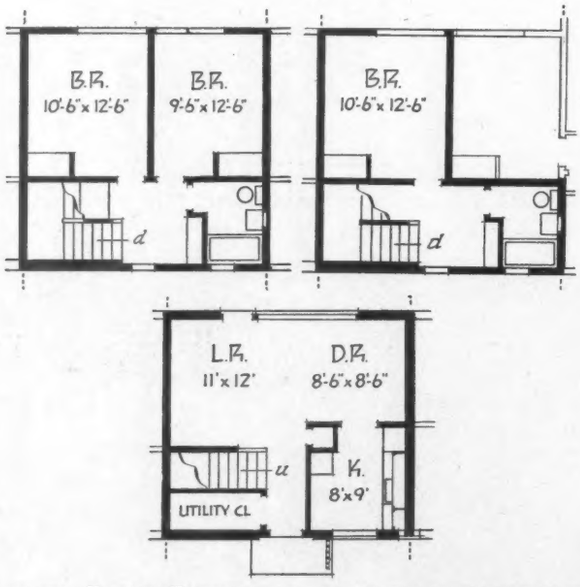


B UNITS HAVE THREE SECOND FLOOR BEDROOMS

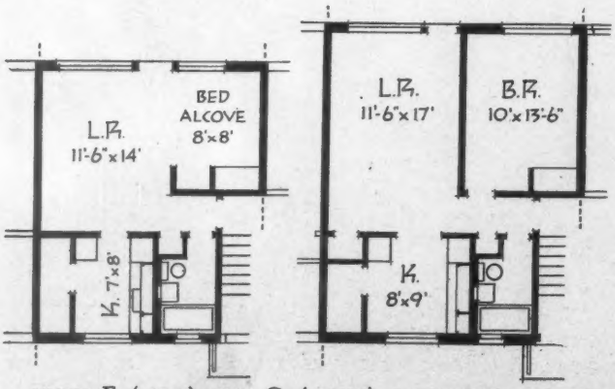




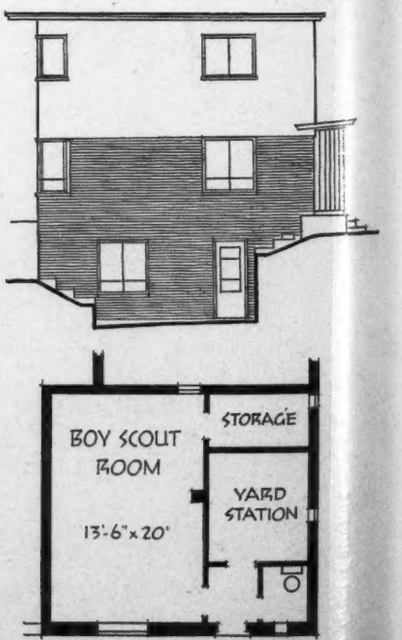
C UNITS ALSO HAVE THREE BEDROOMS



UNITS *D* AND *E* HAVE THE SAME FIRST FLOOR, DIFFER IN SECOND FLOOR LAYOUT. (UNIT *E* AT UPPER RIGHT)

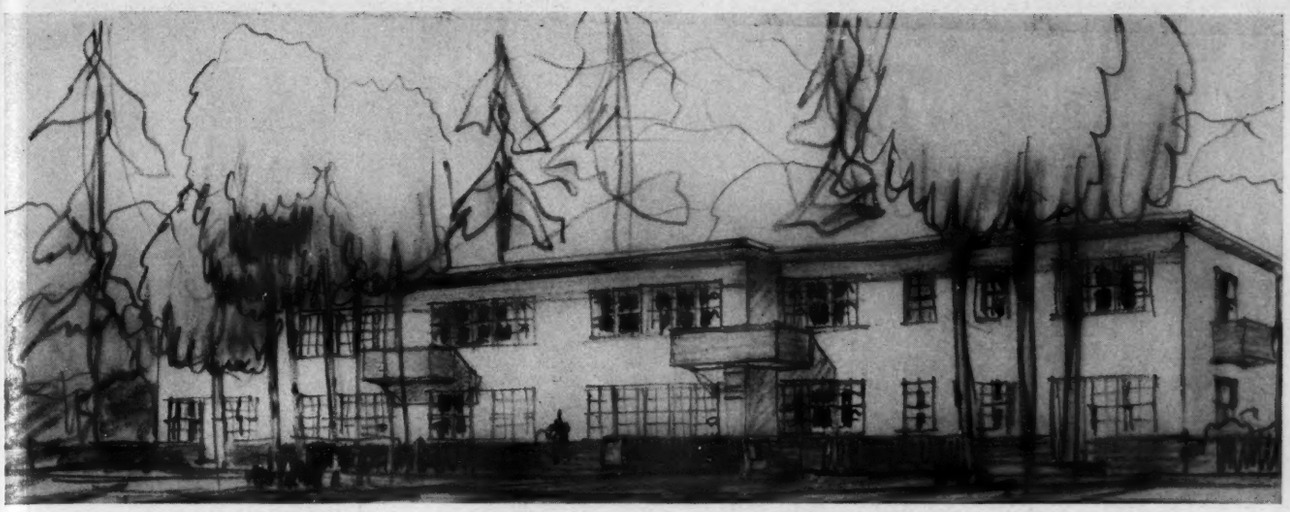


UNITS *F* (LEFT) AND *G* (RIGHT) HAVE THREE ROOMS, ALL ON ONE FLOOR. UNIT *G* HAS A SEPARATE BEDROOM

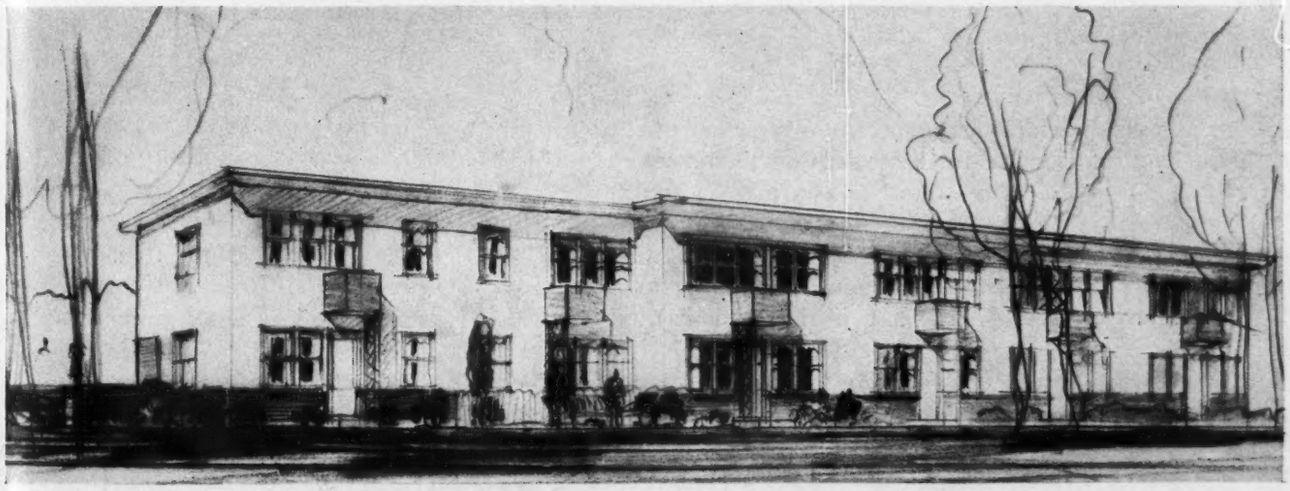


BOY SCOUT ROOM AND YARD STATION PLAN AND ELEVATION

Photos by Louis H. Dreyer



IN STUDYING THE TYPES OF HOMES TO BE CREATED FOR THE PROJECT, THE ARCHITECTS STUDIED MANY POSSIBLE TYPES OF EXTERIOR TREATMENT. ALTHOUGH BALCONIES ARE INDICATED ON THESE SKETCHES,



THE UNITS AS FINALLY CONSTRUCTED (PAGE 689) DID NOT UTILIZE THIS FEATURE. NOTE THE PROJECTING EAVES, THE GENEROUS USE OF GLASS. (THE FRONT COVER ILLUSTRATION WAS TAKEN AT THE PROJECT)

Photos by Louis H. Dreyer

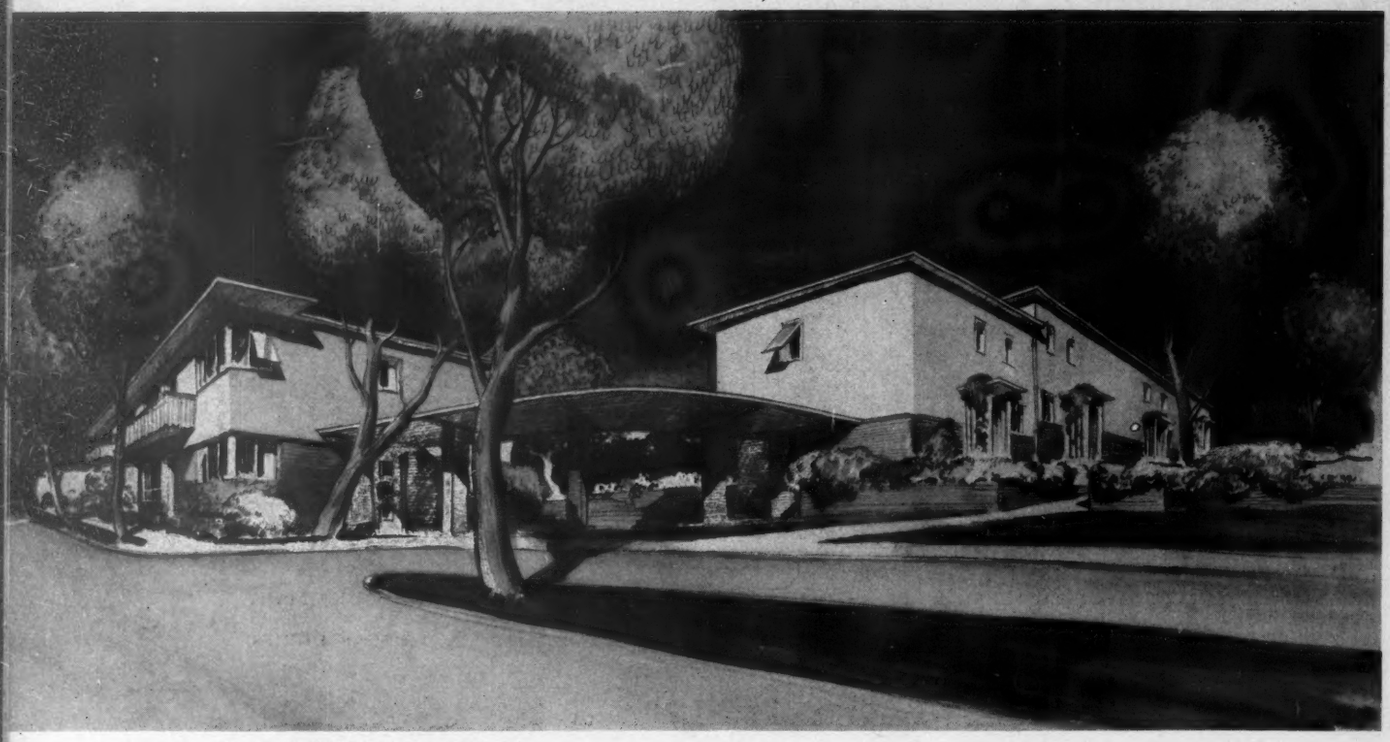
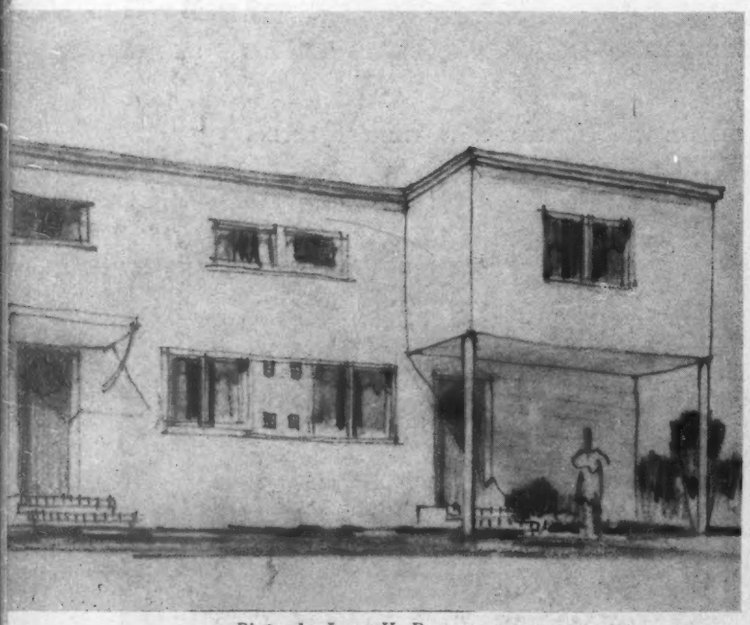
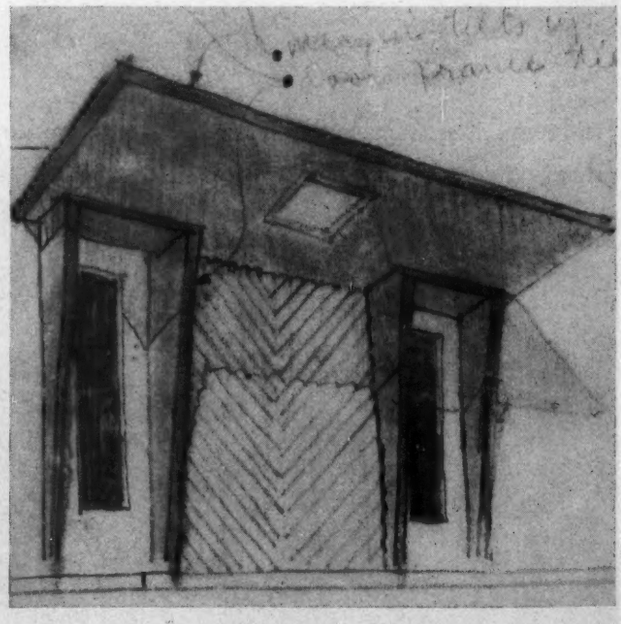


Photo by DePue, Morgan & Co., Inc.

AS SEEN IN THE PRELIMINARY STUDY SKETCHES, THE ARCHITECTS DEVELOPED A COVERED WALK CONNECTING TWO OF THE UNITS (PERSPECTIVE SKETCH ABOVE). THIS ARRANGEMENT SERVES AS THE ENTRANCE TO THE GARDEN AREA BEYOND, FACES THE COMMUNITY BUILDING (SITE PLAN, PAGE 685). THE STUDY GIVES A GENERAL IDEA OF THE TOPOGRAPHY



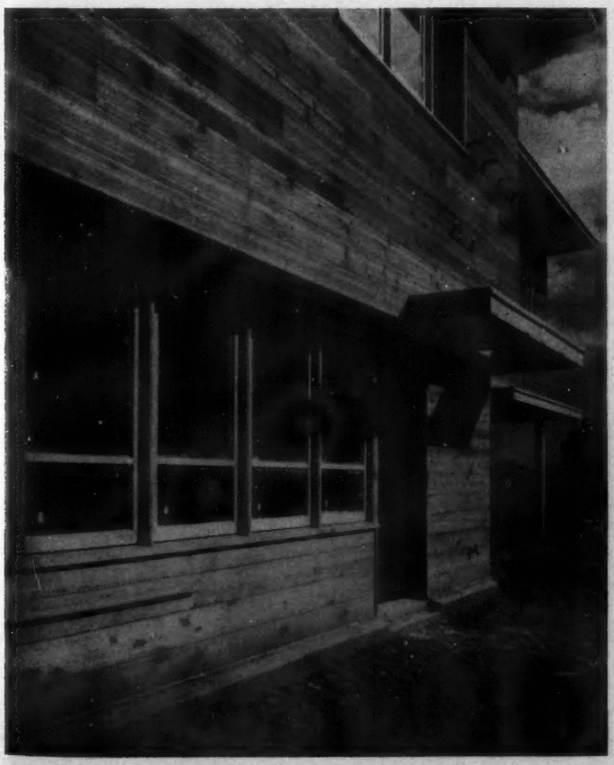


Photos by Louis H. Dreyer

THESE PRELIMINARY STUDIES FOR ENTRANCE DETAILS ARE REPRESENTATIVE OF MANY MADE BY THE ARCHITECTS. THE DOOR HOOD (RIGHT) TILTS UP; THE DOOR FRAME TILTS OUT. A SIMPLER DOOR HOOD WAS MAINTAINED ON THE FINAL HOUSES (ACROSS PAGE). THE HOLE PROVIDES INTERESTING LIGHT PATTERNS

Photos by Ernst Kassowitz

THE EXTERIOR SIDING USED ON ALL THE UNITS IS CEDAR FLUSH BOARDING WITH A RAKED SURFACE, SIMILAR TO HANDSPLIT WORK. THIS SIDING IS PROTECTED BY A WATER-REPELLENT AND PRESERVATIVE, OVER WHICH A PIGMENTED GLAZE IS APPLIED. BARS ON THE OUTSIDE OF THE BUILDINGS, AND THE HOLES IN THE BALCONIES AND DOOR-HOODS, WERE PLACED THERE TO CONFORM TO THE SEATTLE BUILDING DEPARTMENT ORDINANCE WHICH REQUIRES A SECOND MEANS OF EGRESS IN MULTIPLE DWELLINGS. THIS SOLUTION SEEMED THE LEAST NOTICEABLE SINCE THE ARCHITECTS WANTED TO AVOID THE EXPENSE AND APPEARANCE OF FIRE ESCAPES ON THE GARDEN SIDES OF THE HOUSES. INDIVIDUAL GARDENS ARE PROVIDED FOR EACH UNIT



WORKING WITH USHA UNDER THE LANHAM ACT

BY ANTONIN RAYMOND

The purpose of this article is to examine certain aspects of my experience in working with the U.S.H.A. on one of the first projects under the Lanham Act.

The U.S.H.A. and other Government Agencies charged with the task of planning Defense Housing have been criticized for not employing individual architects more often, and have been blamed for doing work in an uninspired manner. Architects directly in the employ of the government have been accused of easily falling into a rut or merely

Photo by Air Photos

THE BETHLEHEM PROJECT IS BUILT ON A HILLY SITE, WITH AN EXCELLENT VIEW. (NOTE OLD HOUSES IN THE IMMEDIATE BACKGROUND.) EXPERIMENTAL HOUSES (TWO SINGLE-FAMILY UNITS, A SIX-FAMILY UNIT, AND A FOUR-FAMILY UNIT) WILL BE BUILT AT THE EXTREME RIGHT AND LEFT OF THE PROJECT

holding on to their jobs, with the result that their efforts have been unimaginative, dull, standardized, etc.

In my mind, professionals connected with low cost housing are divided into three distinct groups. I call the first group technicians, the second exterior and interior decorators, and the third a curious mixture of both. Unfortunately a great many architects belong to the second group, some to the third, and only a few to the first.

Most of the technicians are recruited from the ranks of builders and engineer-contractors who have been in the low cost housing field for years. Because of their long experience, these technicians try to find solutions based on the following: economic use of materials, economy of labor, short construction time, building techniques to suit varying labor conditions, rentals relative to tenant's income, national economy, politics as related to housing, livability in terms of conventional function, amortization, cost and ease of upkeep, nearness to communication lines and public utilities, etc.

The decorators are principally concerned with a preconceived idea of the exterior aspect and charm of both the site and the units. If they are "modern" they aim to produce something individualistic, astonishing, emotionally exciting, something "beautiful with a capital B," something that nobody thought of before, a *tour de force*; or if they are conservative, a charming eclectic stiff shirt. They are sincerely artistic and a too serious study of fundamentals would impede their inspiration.

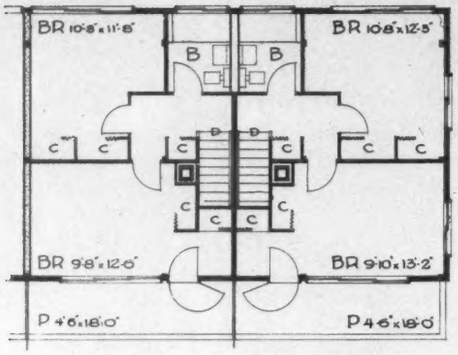
There is still a third group which is fairly interested in fundamentals, but primarily interested in business and therefore interested in the popular appeal of their products to the masses. Their product is a hodge podge combination of the results attained by the two previous groups. They call themselves "modern-but-not-radical," use a lot of corner windows, but use Lally-type columns in basements only,

During its existence the U.S.H.A. has probably employed more individual architects than any other government or private agency. However, in most cases the choice of the architects was made by *local* housing authorities who also selected the staff of supervisors. Naturally, local politics have influenced this matter. During this period of national emergency, the U.S.H.A. has, in its search for competence, broken with this procedure by appointing architects directly, and deserves credit for doing so.

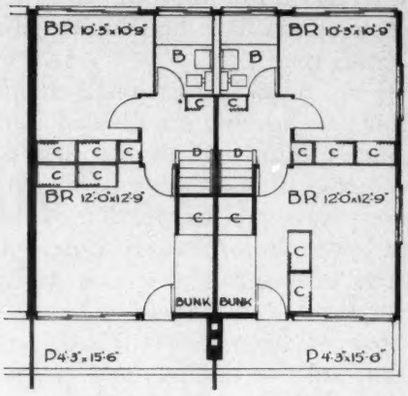
Years of experience taught the U.S.H.A. methods of a direct approach to designing housing projects. They established standards of appropriate minimum planning and construction requirements on lines parallel with established European standards. These U.S.H.A., and also F.W.A. standards served as a basis for the Defense Housing standards. The standards are open to criticism in one respect only—that is that they should be more in a state of flux than they are—modified as quickly as conditions, building methods, available materials, etc. change. But to criticize standardization as being os-

Photos by Cortland V. D. Hubbard

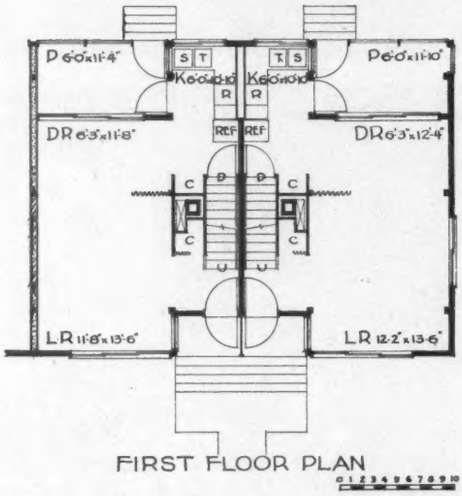
SINCE THE HOUSES HAVE NO BASEMENTS, A HEATING ROOM IS PROVIDED NEXT TO THE COAL BINS (SEE LOWER ILLUSTRATION.) AT TOP IS THE GARDEN SIDE OF THE PROJECT, WITH THE STREET SIDE PICTURED BELOW IT. ASBESTOS SHINGLES ARE USED. (THESE ARE NOT THE EXPERIMENTAL HOUSES)



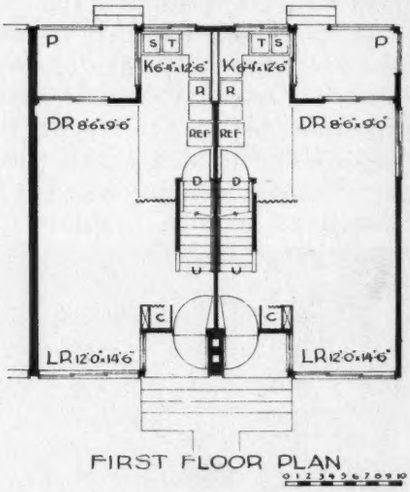
SECOND FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN



FIRST FLOOR PLAN

TWO OF THE EXPERIMENTAL UNITS ARE TWO-STORY HOUSES. ONE PLAN, (ABOVE, LEFT) UTILIZING AN ECONOMICAL COLUMN AND BEAM CONSTRUCTION, IS RAYMOND'S SOLUTION OF THE OPEN PLAN, WHILE THE OTHER PLAN USES THE CONVENTIONAL WALL BEARING STUD CONSTRUCTION. THE USE OF MODERN PLANNING, MATERIALS, AND CONSTRUCTION MAKE FOR A TOTAL LACK OF FORMALITY. THE SECOND FLOOR BALCONY HAS TRAFFIC TOP FLOORING. INCLUDED IN BOTH UNITS ARE HORIZONTAL SLIDING WINDOWS AND SLIDING DOORS BETWEEN THE REAR PORCH AND THE LIVING ROOM. ALSO IN BOTH HOUSES ARE RECESSED FRONT ENTRANCES AND SCREENED PORCHES AT THE REAR. FOR HEATING, PARTIAL BASEMENTS HAVE BEEN PROVIDED TO HOUSE THE INDIVIDUAL COAL-FIRED HEATING UNITS. ASBESTOS SIDING IS USED

sification is missing the sense of low cost housing design entirely. It is like complaining of keys and time in musical composition. Only a government agency can establish standards because it alone has the facilities for gathering and comparing the necessary data and for withstanding the pressure of private interests and politics.

Experience also taught the U.S.H.A. that there are only very few solutions for the three-, four-, and five-room units within the frame work of the established standards. New solutions and forms can be found only where there are changes in social habits, or radical changes in materials employed, requiring radically different construction methods. It is an evolutionary process, hastened by research and experimentation. It is the work of a large group in cooperation and not the work of an individual.

U.S.H.A. has difficulty in explaining to some of the newcomers amongst the architects the futility of trying to find some epoch making solution founded on artistic instincts, personal philosophy, abstract reasoning, or whatnot. It is indeed hard for the newcomers to swallow any standards and to understand the grim reality that what is required is knowledge of the standards, of building materials, building methods, our social structure and habits and therefore livability from the point of view of a workman, his wife and family; knowledge of politics, of mechanical, structural and civil engineering; and above all knowledge of two by fours and exact estimating.

Another grim reality to face is that the very existence of our Democracy depends to a great degree on the utmost saving of time, effort and materials and that this saving can be accomplished only by team work and coordination and not by the efforts of an individual shooting off on a tangent.

Government agencies should and do welcome architect-technicians and there are some men among them as clear-visioned, farseeing, and broad-minded, as there are anywhere. Their aim is to raise the standards by perfection of design and organization and not by raising expenditures. With this point in view, several architects have been asked to take a few units of their projects and experiment with them to obtain better livability, greater economy in materials and time of erection, as well as economy in upkeep.

Mr. O. Kline Fulmer of F.W.A. formulated this program in his letter to Mr. Clark Foreman, Housing Director of F.W.A.:

"The basic purpose of the Lanham Act is to provide dwelling units as rapidly as possible for many thousands of defense workers and their families. Due to the necessity for speed and the economic cost limit of $3,000 average per dwelling unit, the most logical and obvious plan is to follow as closely as possible the standard and conventional methods of construction. Experimentation with new and untried materials or construction methods involves certain elements of potential delay and doubtful cost that automatically rules out most of them from the program as a whole.

"However, it is highly desirable that the Federal government should not overlook the many opportunities for research into new plans, materials, or construction methods that are offered in line with a program of this magnitude and I am herewith offering a suggestion for taking advantage of the experimentation and research possibilities without endangering the bulk of the program."

The Proposal is as follows:

"1. When outstanding architects are selected to plan and supervise a defense project, they shall be instructed to design the project in conformance with the conventional 'U.S.H.A.' practice with the exception of a small group of 10 to 25 dwelling units on which they will be encouraged to experiment in plan, design, and construction. The bulk of the project will be planned and contracts will be let within the time limit set by the Government which, because of the need for speed, is too short to allow for much creative design or planning. But on the experimental group the architects will be allowed additional time (possibly another 25 days) in which to complete plans and specifications.

"2. The experimental houses must be within the same limits of cost as the conventional type (assuming an equal quantity for comparison) and must be equivalent in basic standards of livability and comfort, with the understanding that considerable latitude will be allowed in space arrangement and grouping. (However, bedroom sizes could not be arbitrarily reduced by assuming double deck beds, nor could laundry facilities be eliminated by assuming that laundry will be 'sent out'.) It is anticipated that lump sum bids for construction of experimental houses may be high because of the departure from conventional methods with which the contractor is familiar and it is possible that they may have to be built on a cost-plus-fixed-fee basis. However, the contractor must give assurance that there is nothing inherent in the construction methods proposed that will eliminate the possibility of getting the costs within the limits of conventional construction after he has passed the experimental stage. Naturally, it is hoped that new methods of construction may be developed that will be superior in quality but lower in price than the conventional methods.

"3. At the recent World Fairs, a number of houses were built with various kinds of unconventional materials and with new construction methods, but in most cases the purpose was to sell a certain material or a patented type of

construction. Contrary to that approach, the experiments proposed in this program are to be financed with public funds and the architect's decisions must not be motivated by any interests of a private nature.

"4. A number of experimental houses have been built in past years which received much fanfare and publicity at the time they were built, but in most instances these houses have been handled as single experimental units with no program for informing the public of their findings and for a follow up of the pros and cons of the experiment. Therefore, it is important in this program to approach the problem as scientifically as possible; to inform the public of the general nature of the program; to make a record of the reasons for using certain materials and construction methods; to report on the results of using those materials and methods as viewed from the standpoint of original cost, possibility of future cost, availability of materials on a nation-wide scale, and most important, what happens to the houses as time and weather begin to work on them and people begin to live in them.

"5. The architects shall follow and report in detail on the construction of their experimental houses and take photographs of the various stages of construction. These reports and records will be compiled with the understanding that an annual report will be made for the next ten years on the maintenance costs and general acceptability of the houses from the standpoint of livability. It is anticipated that the architect will be given free publicity in the general development of this program and in return for this publicity he must be willing to follow up his experiment for ten years at no cost to the Government other than his original fee.

"6. The Government will cooperate with the architects in every way possible and will attempt to select tenants or owners for the experimental houses who will be sympathetic to the scientific program and will be willing to cooperate in the experiment wherever possible. Too many of our present day houses are designed mainly for quick sale and the buyer discovers later that he is forced to adjust many of his desires in livability because he was originally vulnerable to too much 'eye appeal.' In this program it is hoped that the architect will design the house with constant relationship to the fourth dimension of livability.

"7. These experimental groups should be considered as small laboratories of housing with the architects as chief scientists. They will be scattered in several locations throughout the United States in order to allow for regional adaptability and should not be undertaken except on a long-time follow-up basis in order that the public shall benefit by the full value of this scientific experiment."

It is a source of real satisfaction that such a liberal far-sighted program comes from a government agency. To get the real feeling of it, compare it with the prejudiced, painfully conservative program of private interests. It is not concerned with the present emergency only, and if carried out by even a few architect-technicians, it should better the standards by contributing otherwise unobtainable material.

I presume that I was one of the first, if not the first architect to work with the U.S.H.A. under the Lanham Act, and therefore participated in doing the ground work and preparing the way for further developments. Taking the existing contracts for architectural services, existing standards, existing floor plans for the units as a basis and adjusting them to the provisions of the Lanham Act had to be done almost on the spur of the moment. While we as designers tackled the problem freely, U.S.H.A. veteran officials naturally clung to the valuable materials in their files and in the ensuing conflict both sides had to give and take. The net result was that my solution of the Bethlehem job is cramped by the old U.S.H.A. standards based really on 60 years amortization, new methods and materials taboo unless proved, et cetera. An example: dry construction, Gyplap sheathing, 15 year roofing, unconventional details were outlawed, coal as fuel was adopted, but chuting of coal was made obligatory, affecting site planning of the difficult hilly site to a degree making an economical solution almost impossible and making the existing floor plans unworkable. The way was paved, though, for clarification of the issue, and architects called in since that time find the new standards and methods much easier to deal with. I have just seen a set of plans for a 250 unit site accepted by F.W.A. with all the above mentioned obstacles removed and permitting a freedom which is fully experimental and swinging the pendulum perhaps too much the other way.

As a result of the experimental work and the work on actual projects with hemming obstacles removed I would advocate establishing new standards and standard floor plans, fitting the Lanham Act and emergency conditions. Standardized floor plans should be given to the architects before even any sketching is done.

The architect-technician will find it an all exacting task to find a fitting solution within say four weeks, even with the standard plans given to him. Let us enumerate a few of the limitations within which he has to work.

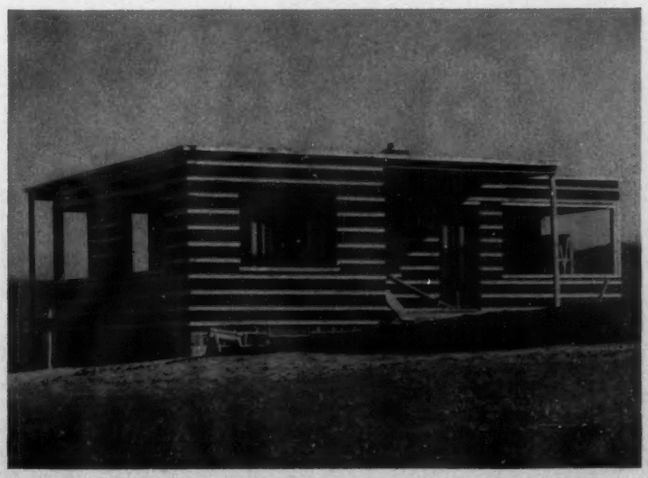
Every site offers a different problem. As a rule a community rather than a thoroughfare is desired and the site plan is worked out in correlation with existing communica-

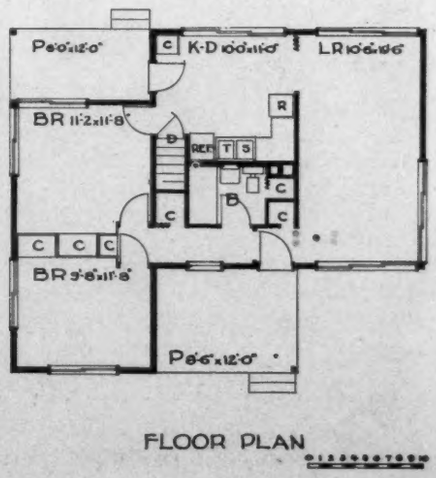
tions, schools, churches, et cetera. Width and amount of streets, sidewalks, landscaping, public utilities, parking spaces, community center and playgrounds et cetera, all are dictated by cost limits of the Act. Coal being the fuel and chuting more economical for tenant than bag delivery, the relation of building levels to roads is a grave problem in itself on a hilly site. Depth of sewers and equalization of cut and fill are fundamentals of economic site planning and dictate grades and therefore the design. To execute working drawings and specifications which will be within, or better still below the cost limit at the first shot, requires a design using standard dimension materials to assure minimum cutting; green materials require a special design to avoid excess shrinkage; speed in erection requires prefabrication of some parts; inexperienced labor—foolproof methods of erection; due regard for materials used in other phases of defense, knowledge of markets, etc.

Pacifying local authorities and getting on with local politicians and business interests, having them accept dedicated roads (in spite of not being able to comply with local regulations and practices), and defending the project against local private interests takes tact and time. Public utilities are almost as difficult as municipalities—to find minimum and still efficient electrical, heating, and plumbing systems with available materials, acceptable to unions, fire underwriters, etc. is also a problem. Drawings and specifications must be more complete and precise in order to assure correct bids, to eliminate extras and loss of time during erection. To make accounts, to act as agent for the government, and to collect at least a part of one's money means wading through streams of red tape and is a major problem.

A practitioner who can perform satisfactorily these services and conserve or establish high standards is indeed a technician. To conclude, I would like to express the opinion that the limitations of the Lanham Act, coupled with intelligent administration, by eliminating waste, extravagance, and false pretentions have brought about a radical change toward better understanding of the value of simplicity and direct solutions and is a safe approach toward better design and the true art of building.

THE THIRD TYPE OF EXPERIMENTAL HOUSE DESIGNED BY ANTONIN RAYMOND IS A ONE-STORY HOUSE. IN THIS UNIT THE DESIGNER CREATED PREFABRICATED CLOSET UNITS WHICH CAN BE MOVED TO CHANGE THE SIZE OF THE BEDROOMS, OR MOVED INTO THE LIVING ROOM, MAKING THAT SIDE OF THE HOUSE THE BEDROOM. THE HOUSE IS FREESTANDING, HAS THE BATH ROOM, CLOSETS, HEATING FACILITIES CONCENTRATED IN THE MIDDLE OF IT. A ROOF MONITOR PROVIDES THE NECESSARY LIGHT AND AIR FOR THE BATHROOM

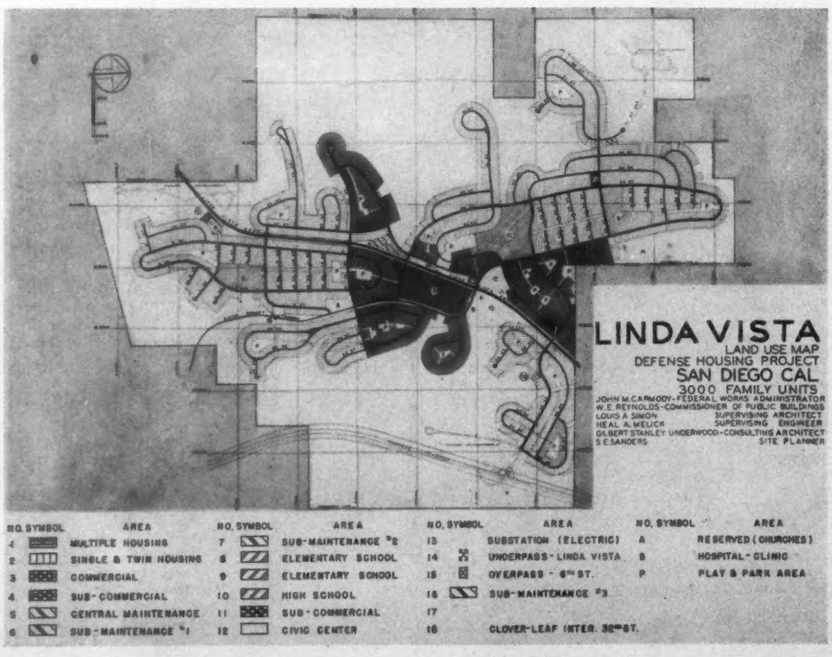




FLOOR PLAN

PBA Photos

THE SITE PLAN OF LINDA VISTA, EVOLVED BY SITE PLANNER S. E. SANDERS, IS A HIGHLY FUNCTIONAL LAY-OUT UTILIZING THE NATURAL CONTOURS TO THE GREATEST POSSIBLE DEGREE. THE NORTH-SOUTH RIDGE OF THE MESA, ON WHICH THE PROJECT IS SITUATED, IS TWO MILES LONG, WAS CHOSEN AS THE MAIN AXIS OF THE PROJECT. IN THE INSET (LOWER LEFT OF TOP PHOTOGRAPH) MAY BE SEEN THE RELATIONSHIP OF THE HOUSING DEVELOPMENT TO THE CITY OF SAN DIEGO. THE KEY MAP (INSET, UPPER LEFT) SHOWS THE POSITION OF THE COMMERCIAL AREA; COMMUNITY CENTER, HIGH SCHOOL, GRADE SCHOOLS, RESERVOIR, AND SEWAGE DISPOSAL PLANT, WITH RELATION TO THE ENTIRE PROJECT. BELOW IS THE LAND USE MAP. SYMBOLS INDICATE AREAS ASSIGNED TO THE HOUSING, ADMINISTRATIVE, AND MAINTENANCE UNITS



LINDA VISTA

AMERICA'S LARGEST DEFENSE HOUSING PROJECT

BY DONALD S. CAMERON AND GERARD T. BEECKMAN

A year ago, San Diego's housing shortage was bringing notoriety to defense housing needs. The city had been immediately affected when the defense program got underway. Its harbor, traditionally one of our principal Navy bases, was rapidly transformed into one of the busiest depots on the West Coast. At the same time, under the impetus of defense orders, aircraft manufacturing became the city's major industry. Jobs were being created faster than they could be filled.

The bulge in the city's population between the 1940 census report and the end of the year was 30,000. Lurid tales of high rents, trailer towns, and families bunking in idle street cars were carried in the press. With the reports from factory officials that men were refusing jobs for want of decent housing came the realization that the lack of substantial living quarters in San Diego was impeding an important phase of the defense program. Today, however, four government housing projects are beginning to provide over 4,500 new homes. Private builders have erected scores of others. Production for defense in San Diego is now rid of its most serious handicap. The first project to be established by the President under the Lanham Defense Housing Act—3,000 family units—remains America's largest single defense housing project. It is also the largest modern low-cost housing development in the world.

The design and construction of the project, now known as Linda Vista, were made the responsibility of the PBA.

The 3,000 family units mean homes for more than 13,000 men, women, and children, a population enough for a small city. Plans were gotten underway in Washington as soon as basic data could be shipped in from the Coast. W. E. Reynolds, Commissioner of Public Buildings, had set up a defense housing unit within PBA's Office of the Supervising Architect. Site planning was made the responsibility of S. E. Sanders, Staff City Planner. Shelter design was undertaken by C. D. Persina, Architect. Coordination of the planning was under the direction of Gilbert Stanley Underwood, Consulting Architect. Louis A. Simon was Supervising Architect, J. Stanton was Color Consultant, and E. R. A. Litzau was in charge of architectural drawings. The planning of a self-contained town naturally falls into three categories—site development, shelter design, and utility layout. An important phase of the first operation is site selection. In San Diego, PBA site agents found the choice of suitable properties limited within the artificial boundaries imposed by the "normal growth" of the city. Most of the new housing has been built southeast of the business district. Mission Canyon, one mile wide and 300 feet deep has traditionally controlled expansion to the north.

Kearney Mesa is a plateau, and the PBA purchased the 1240 acres in the southwest portion closest to the city proper. Canyons surrounding the site on the south, east, and west offer formidable obstructions to encroachments that could cause blight or interfere with the natural views which enhance the desirability of the site.

In many ways the mesa was a "natural" for a housing development. Yet its irregular terrain and canyon cuts presented a challenge to the ingenuity of the site planner. The solution evolved by Site Planner S. E. Sanders was a highly functional layout utilizing the natural contours to the greatest

possible degree. With soil less than three feet deep, skilful planning and supervision were also requisite to keep cut and fill to a minimum. The main axis of the project is the two mile long north-south ridge. Linda Vista Road, which forms the backbone for vehicular circulation, follows the ridge. Main circulatory roads penetrate into the project from Linda Vista Road. Housing areas in this central portion are supplemented by smaller outlying sections which take advantage of the land spurs that are formed by the indentations of canyons and arroyos.

In the Linda Vista plan the primary roads form super blocks. Access within the blocks varies with the type of shelter. In areas occupied by single and duplex units, secondary loops and cul-de-sac streets provide vehicular egress. In areas devoted to multiple family units, pedestrian walks provide the only means of access. This permits a complete segregation of autos and pedestrians where greater density intensifies traffic hazard probabilities.

Within all areas the site layout provides pedestrian circulation that connects housing units with schools, recreational areas, and commercial facilities, and is independent of motor circulation, made possible by the development of spacious courts within the super blocks. Ample distance betwen housing units and walks and the arrangement of plant masses eliminates any interference with the privacy of tenants.

In "spotting" the Linda Vista houses, the site planners have developed an arrangement so that each family unit may share in one or more of the views. Six family dwellings have been placed on the crest of the central ridge; four family buildings are found at the next level below. Duplexes and single family units have been placed in outlying sections. Planting plans, now completed, will provide colorful landscaping for both house and park areas at an estimated cost per unit of less than $30, including street, park and yard trees, and foundation planting. As the site was devoid of trees, except for an olive orchard covering nine acres, it is proposed to plant nearly 11,000 young trees and 60,000 shrubs and vines.

The freedom from regimentation which characterizes the site plan developed at Linda Vista is complemented by the variety in architectural faces of the shelter itself. This is partly achieved by building size. Of the 3,000 units, 1,184 are one family dwellings, 237 are duplexes, 178 are large enough to accommodate four families, and the remaining 105 units make up multiple dwellings each containing six families.

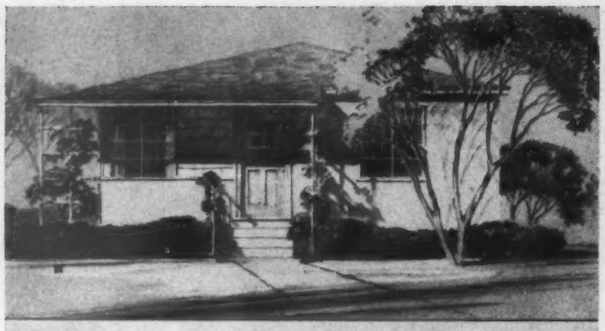
Though floor plans for each family unit are identical, variation in exterior architectural detail is effected by use of 25 different shelter designs developed by Architect C. D. Persina. Linda Vista architecture is contemporary in spirit and embodies many characteristics common to Southern California. The size of the casement window is generous because the design temperature for San Diego is 40 degrees. Sloping roofs have overhanging eaves with continuous slatted vents below. Exterior wall surfaces are stucco, or stucco and red wood siding, to give variety in color and decorative effect.

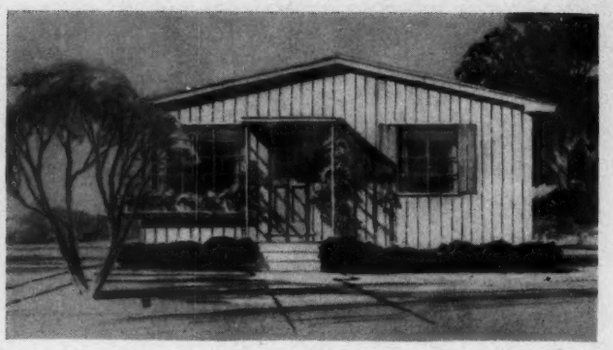
Shelter costs meet the rigid limitations set by the Lanham Act—an average of $3,000 per unit.

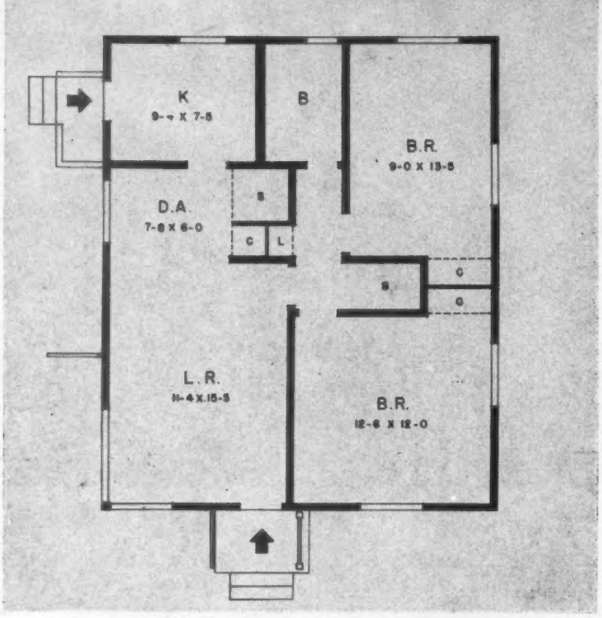
Flooring in all units is oak. Units are heated by gas-burning floor furnaces which produce sufficient heat for San Diego's mild climate. Tenants who wish to keep their cars under cover will be permitted to build garages on their lots for which standard designs have been originated by the project architects. Mass production, streamlined to meet a 300 day deadline, has been the main reason for the phenomenal success of the contractors in America's biggest housing project in history. To facilitate the work of the nearly 5,000 men, everything was geared to keep every crew in every trade continually supplied with the necessary materials and services. Main shops, equipped to handle more than the predetermined amount of work, were set up, included a lumber mill, plumbing shop, electric shop, sheet metal shop, tool-grinding and repair shop, mill work shop, saw mill, and an assembly shop for prefabricated forms. At the peak of production the materials, cut to size and prefabricated, were delivered to construction sites at a rate so that 30 houses a day could be completed. Smaller shop units, including hand forges and tool sharpening shops, were moved continually about the project following various stages of construction.

For electric current and gas, provisions were made for service from San Diego utility companies. To supply the water needs of the new community, a complete water system has been installed. From the beginning of the project, and keeping pace with all construction, has been the installation of a sewer system, which, with a modern sewerage disposal plant, will serve the needs of the new city.

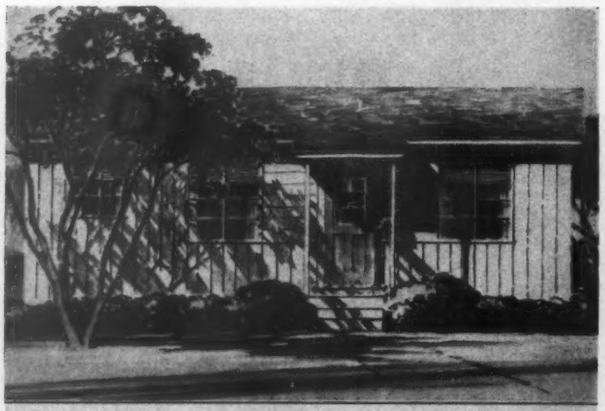
AN IDEA OF THE VASTNESS OF THE PROJECT MAY BE HAD FROM THESE TWO AERIAL PHOTOGRAPHS LOOKING SOUTH (UPPER PHOTOGRAPH) AND NORTH (LOWER PHOTOGRAPH). LARGE PARK AND PLAYGROUND AREAS WITHIN THE PROJECT WILL BRING MANY TYPES OF RECREATION WITHIN EASY DISTANCE OF EACH HOME. THE SURROUNDING CANYONS ARE TO BE MAINTAINED AND DEVELOPED TO PROVIDE PRESERVES WHERE SPORTS SUCH AS HIKING AND HORSEBACK RIDING MAY BE ENJOYED. HOUSING AREAS IN THE CENTRAL PORTION ARE SUPPLEMENTED BY SMALLER OUTLYING SECTIONS WHICH TAKE ADVANTAGE OF THE LAND SPURS THAT ARE FORMED BY THE INDENTATIONS OF CANYONS AND ARROYOS ENCIRCLING THE SITE

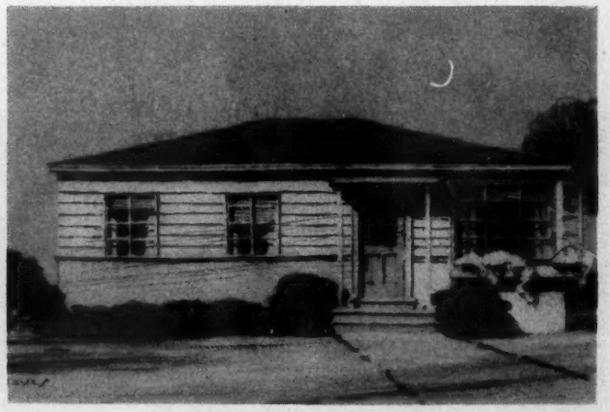


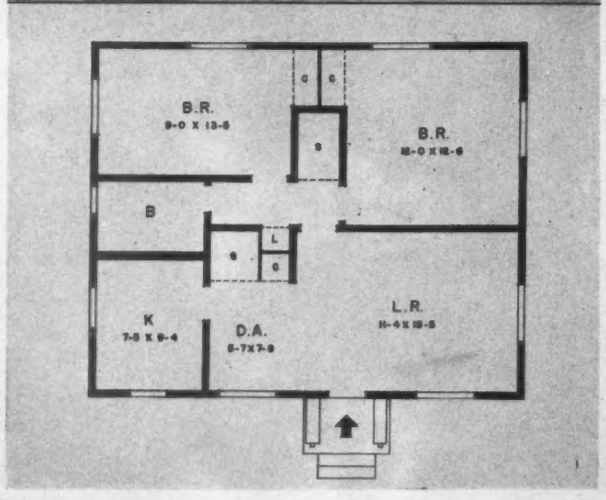


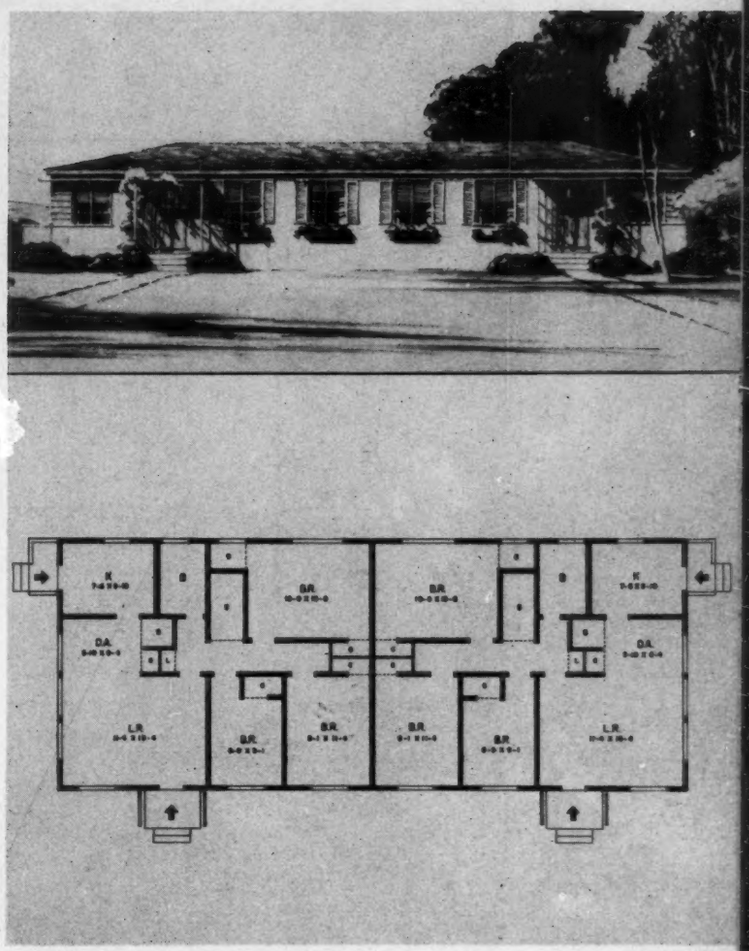


THOUGH FLOOR PLANS FOR EACH FAMILY UNIT ARE IDENTICAL, VARIATION IN EXTERIOR ARCHITECTURAL DETAIL IS EFFECTED BY USE OF 25 DIFFERENT SHELTER DESIGNS. THESE ONE-STORY, SINGLE-FAMILY DWELLING UNITS ARE ALL EVOLVED FROM THE SAME PLAN

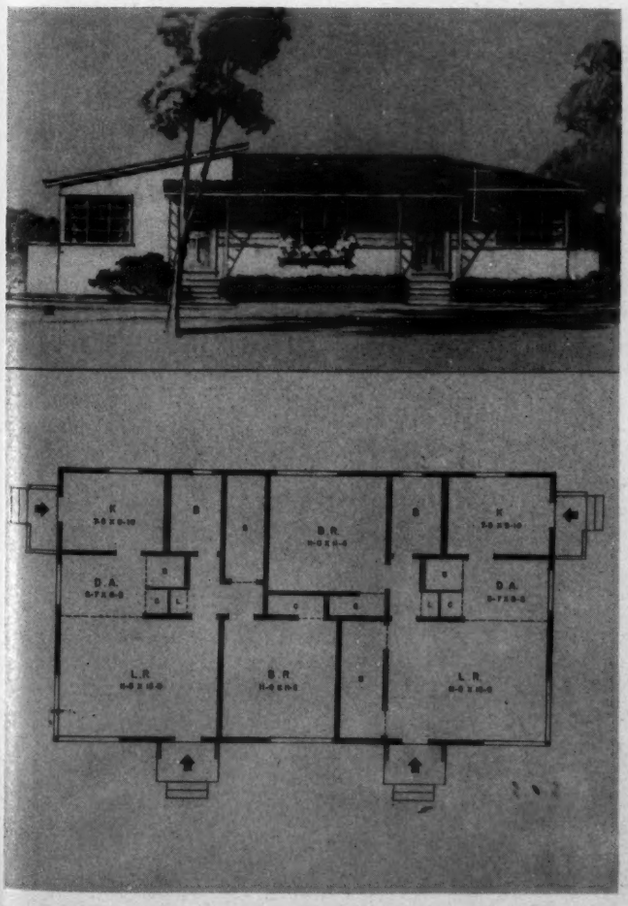


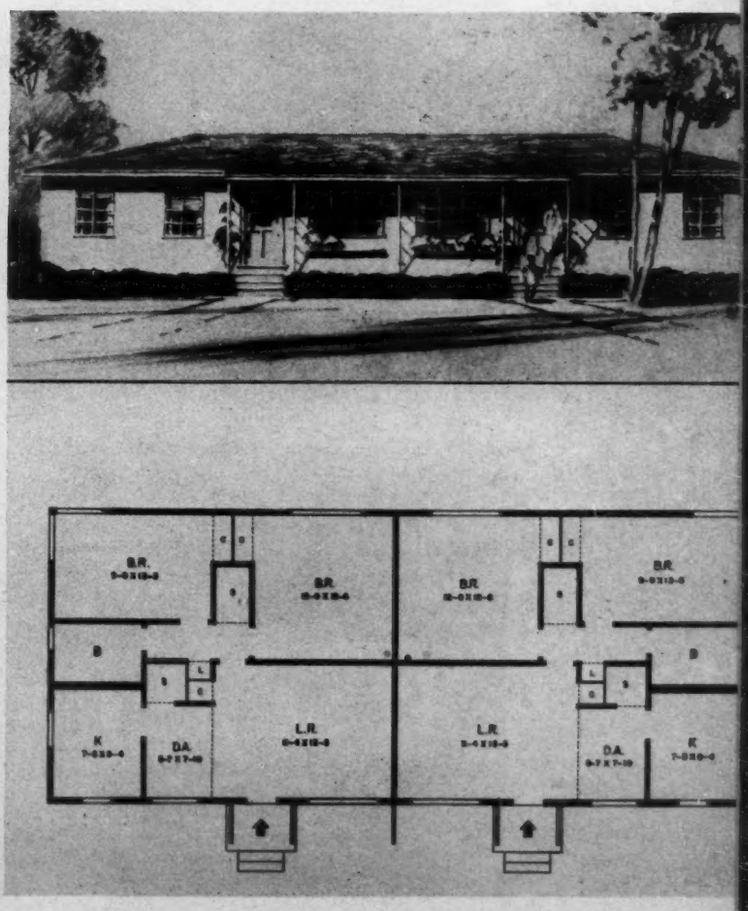


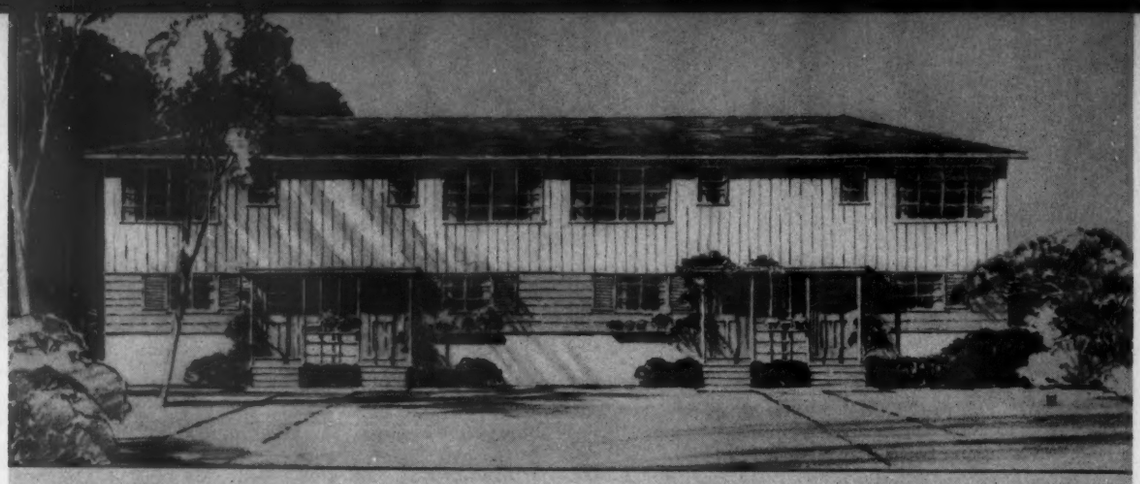


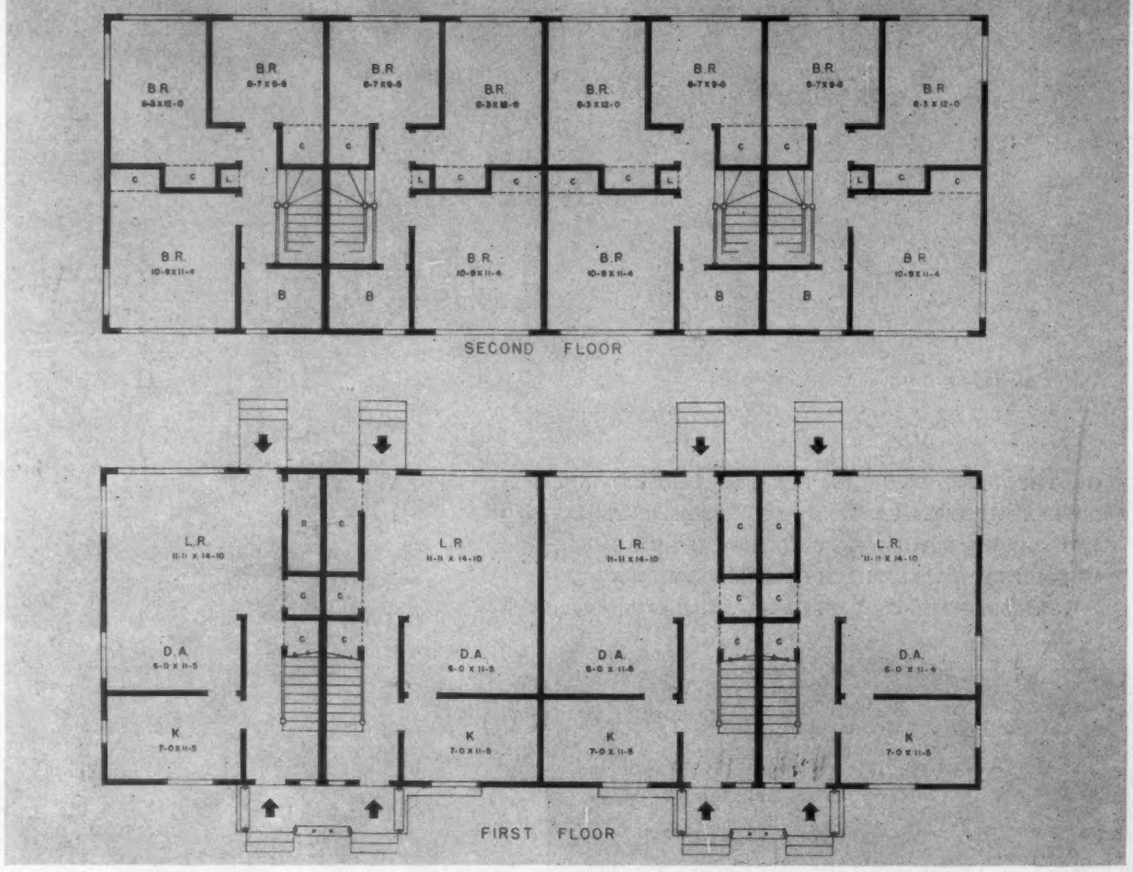


OF THE 3,000 UNITS IN THE PROJECT, 237 ARE DUPLEX HOUSES. AVOIDING THE STYLISTIC, LINDA VISTA ARCHITECTURE IS CONTEMPORARY IN SPIRIT, EMBODIES MANY SOUTHERN CALIFORNIA CHARACTERISTICS. (SKETCHES OF UNITS BY W. J. HARTGROVES)

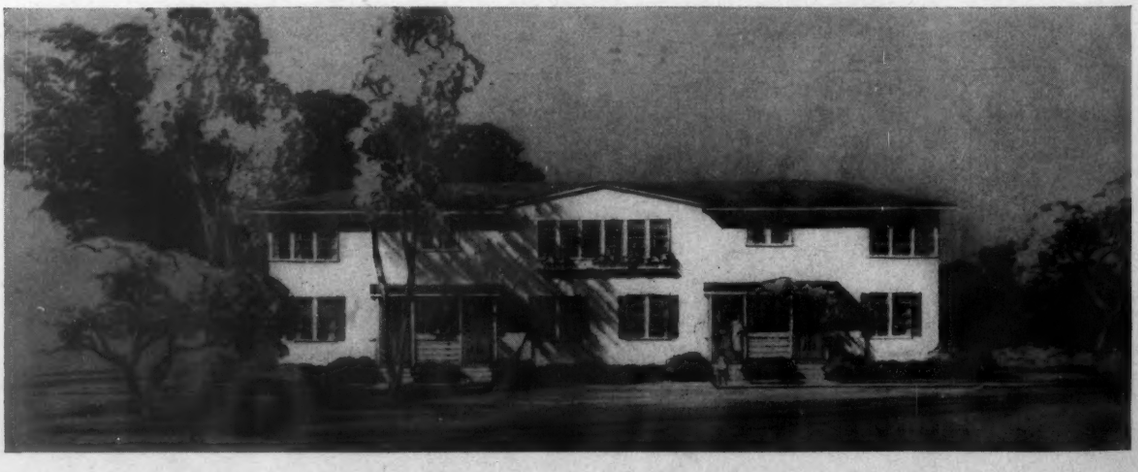


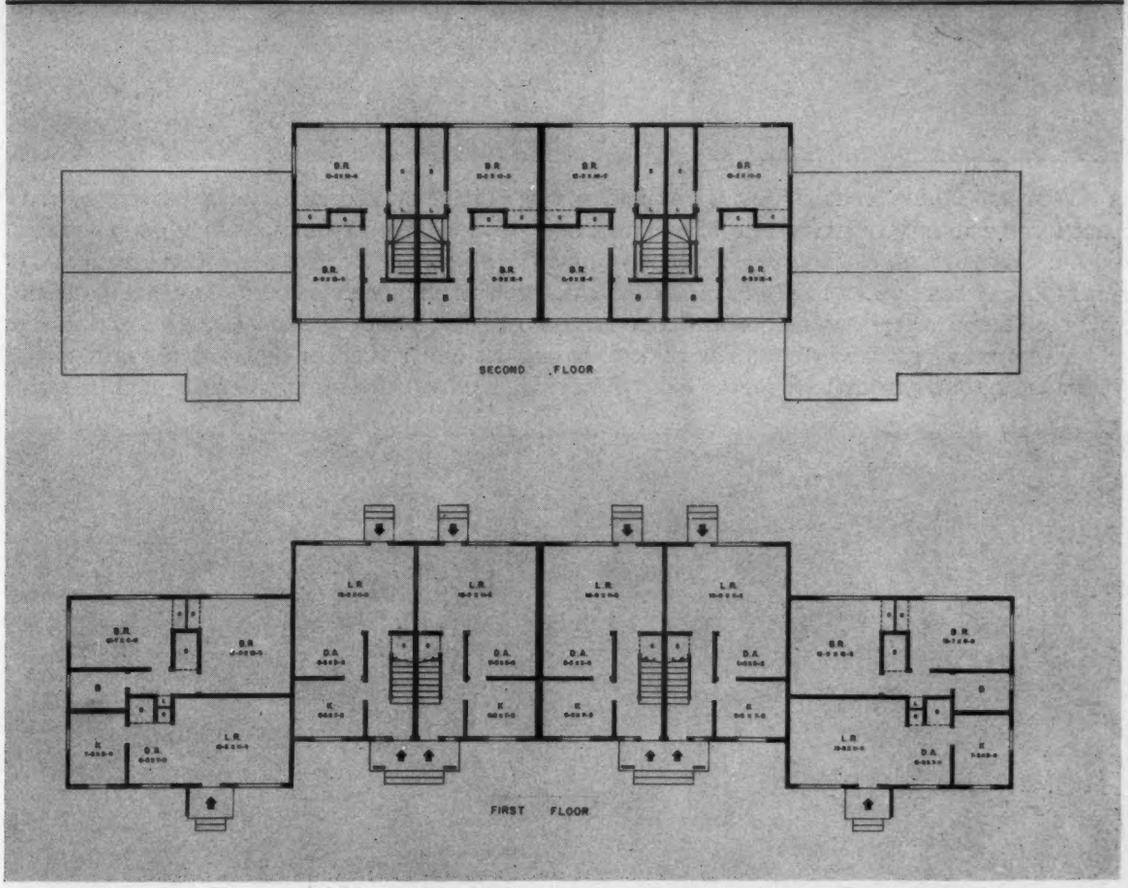






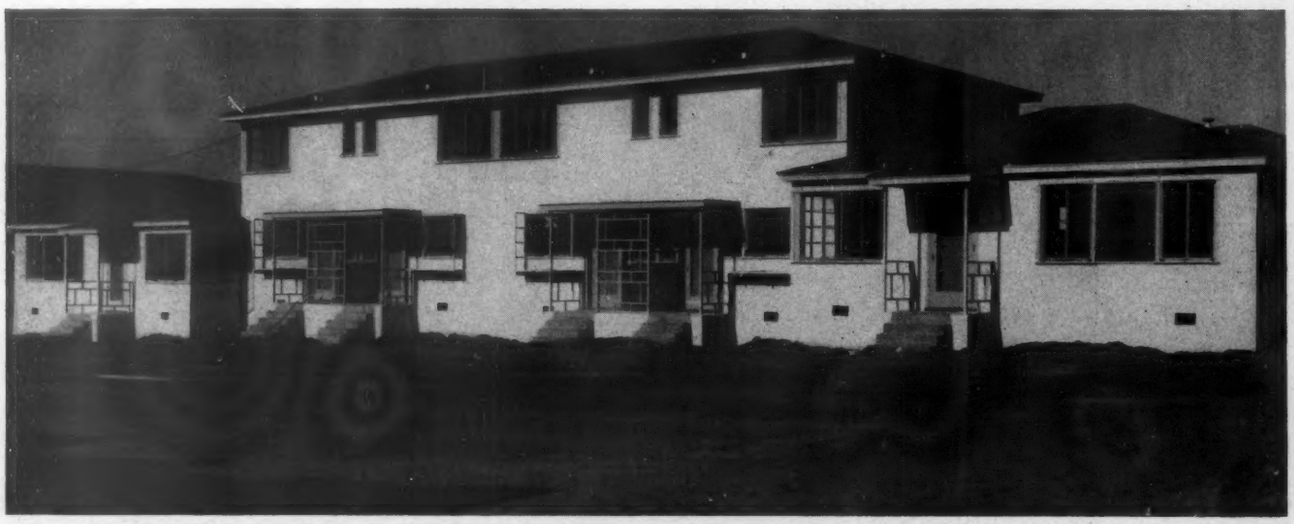
MULTIPLE DWELLINGS TAKE UP 105 UNITS, EACH CONTAINING SIX FAMILIES, WHILE 178 UNITS ARE LARGE ENOUGH TO ACCOMMODATE FOUR FAMILIES. EXTERIOR WALL SURFACES ON ALL THE UNITS ARE OF STUCCO, OR STUCCO AND RED WOOD SIDING, TO GIVE VARIETY IN COLOR AND DECORATIVE EFFECT. THE FOUR FAMILY UNITS HAVE THREE BEDROOMS, WHILE THE SIX FAMILY UNITS HAVE TWO BEDROOMS. THE LATTER

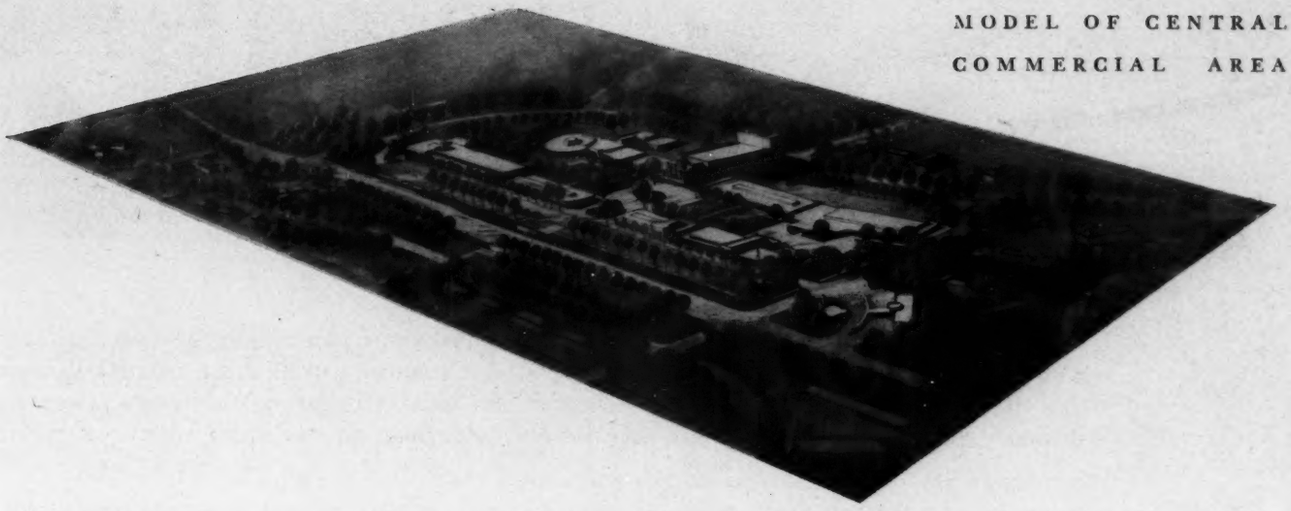




UNITS ARE MADE UP OF A TWO-STORY UNIT HOUSING FOUR FAMILIES, WITH SINGLE FAMILY, SINGLE STORY UNITS AT EITHER END OF THE TWO-STORY UNIT. EACH OF THESE HOUSES HAS ITS INDIVIDUAL LOT WHICH PROVIDES AMPLE LAWN AND GARDEN SPACE FOR ALL THE TENANTS IN THE UNIT. TENANTS HAVING CARS WILL BE PERMITTED TO BUILD GARAGES FOR WHICH STANDARD DESIGNS HAVE BEEN PROVIDED

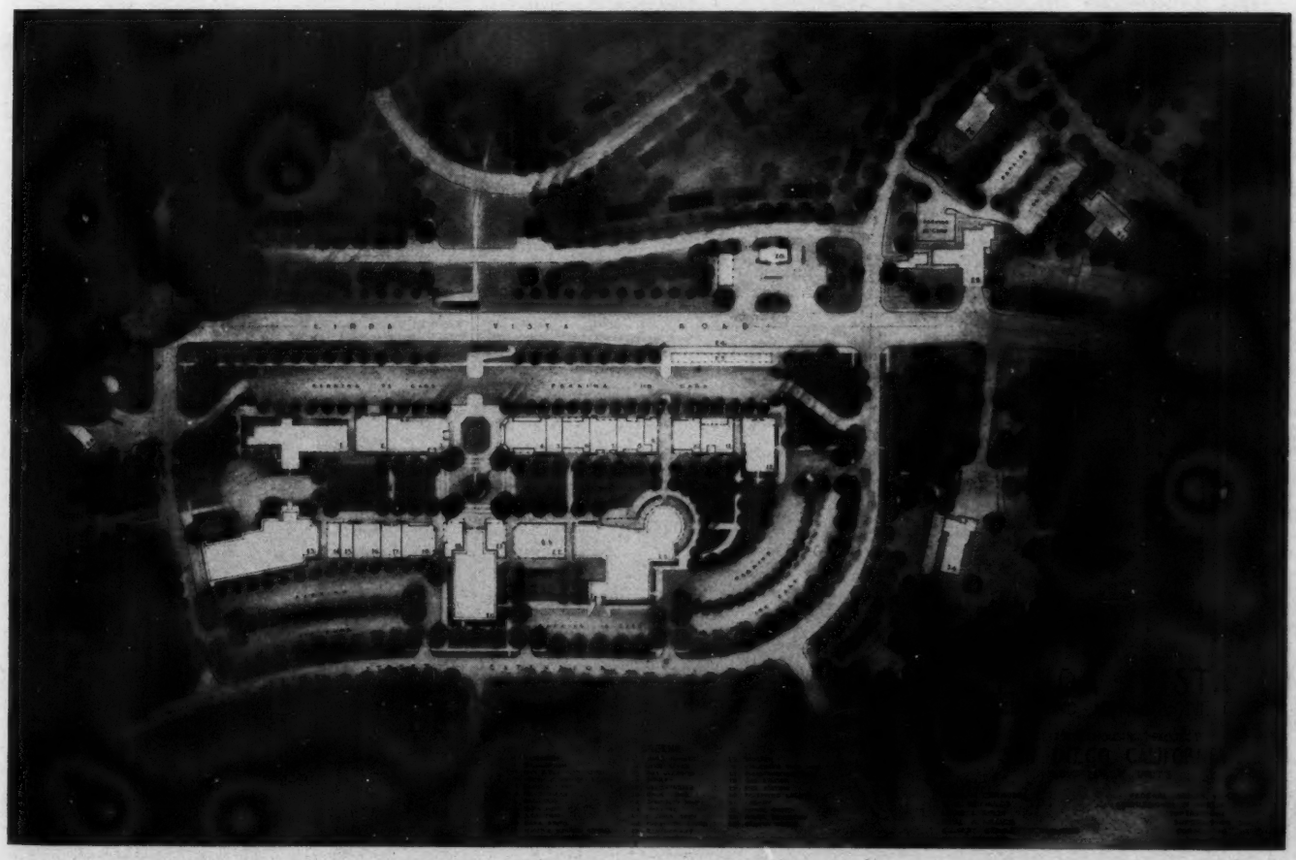
IN "SPOTTING" HOUSES AT LINDA VISTA, THE SITE PLANNERS HAVE DEVELOPED AN ARRANGEMENT SO THAT EACH FAMILY UNIT MAY SHARE IN ONE OR MORE OF THE VIEWS. SIX FAMILY UNITS HAVE BEEN PLACED ON THE CREST OF THE CENTRAL RIDGE, FOUR FAMILY BUILDINGS ARE AT THE NEXT LEVEL BELOW. DUPLEXES AND SINGLE FAMILY DWELLINGS HAVE BEEN PLACED IN THE OUTLYING SECTIONS. PLANTING PLANS, NOW COMPLETED, WILL PROVIDE COLORFUL LANDSCAPING FOR BOTH HOUSE AND PARK AREAS. PLANTING PLANS APPROXIMATE A COST OF $30 FOR EACH UNIT. SHOWN ARE EXAMPLES OF A FOUR FAMILY UNIT (UPPER LEFT), ONE FAMILY UNIT (UPPER RIGHT), SIX FAMILY UNIT (CENTER), TWO FAMILY UNIT (BOTTOM)



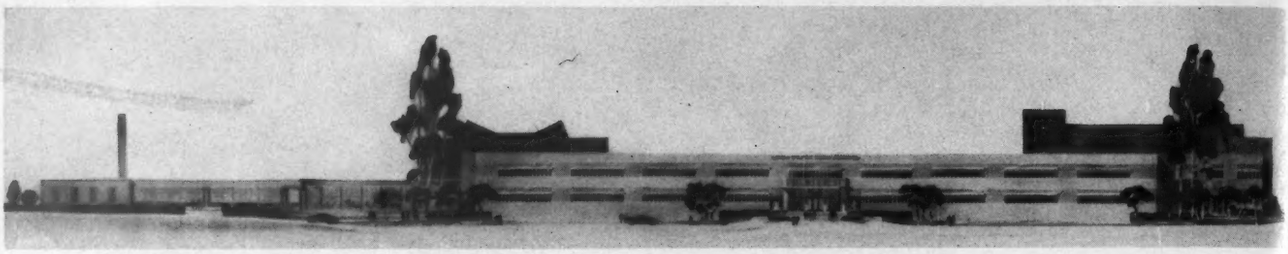


MODEL OF CENTRAL COMMERCIAL AREA

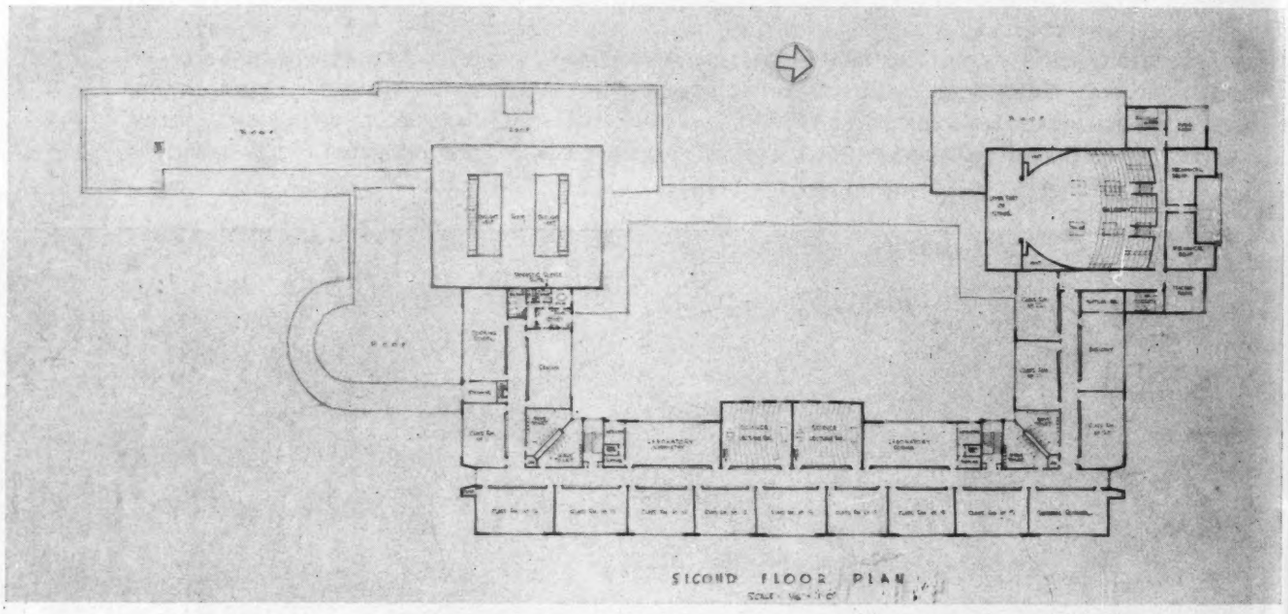
A TABULATION OF THE AREAS WAS MADE SO THAT EACH REQUIRED FACILITY COULD BE ASSIGNED A SPACE IN THE CENTRAL COMMERCIAL AREA AFTER THE DEVELOPMENT OF TENTATIVE STANDARDS. THESE STANDARDS ARE ESTIMATES BASED UPON INSPECTION OF MANY PRIVATE AND PUBLIC RESIDENTIAL COMMUNITIES AS WELL AS SURVEYS OF POSSIBLE RENTALS AND EXPECTED INCOME OF THE TENANTS. TWO SUB-CENTERS



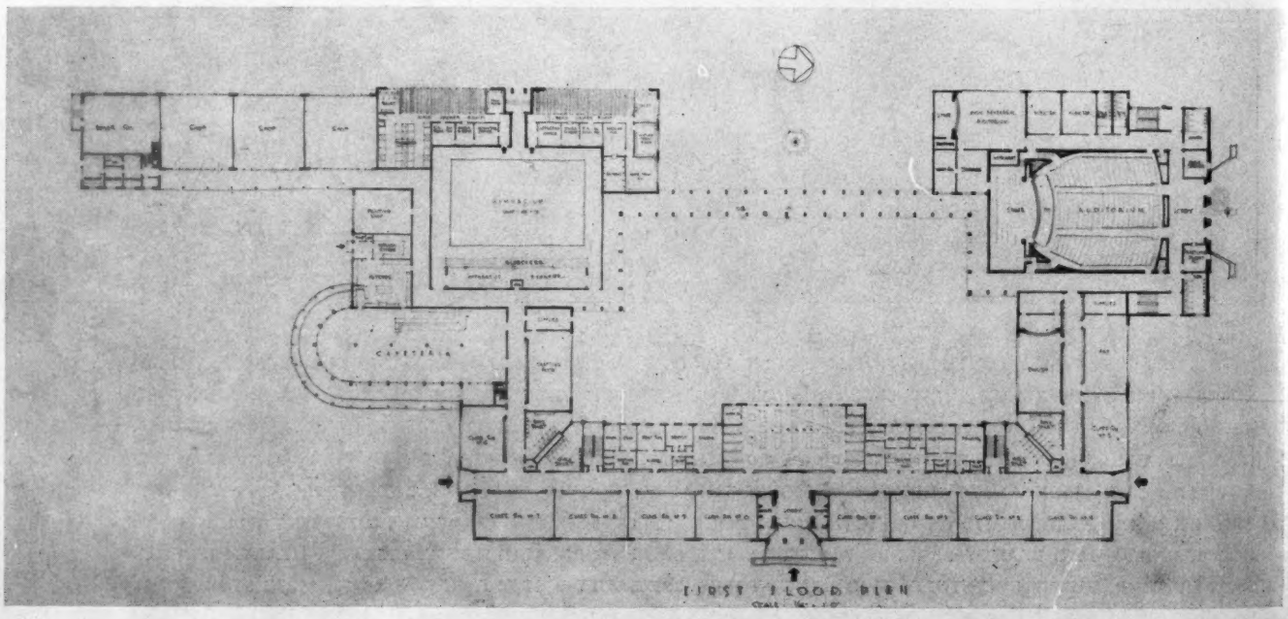
AT EITHER EXTREMITY OF THE SITE HAVE BEEN LOCATED TO SERVICE IMMEDIATE RETAIL NEEDS, A DRUG STORE AND A FOOD MARKET HAVE BEEN ASSIGNED TO EACH OF THESE SUBSIDIARY AREAS, AND APPROPRIATE PARKING AREAS PROVIDED. THREE SITES HAVE BEEN RESERVED FOR CONSTRUCTION OF CHURCHES. OTHER RETAIL UNITS PROVIDED FOR IN THE COMMERCIAL AND ADMINISTRATIVE CENTER (SITE PLAN BELOW AND ELEVATION ABOVE) INCLUDE A MOVIE THEATRE, TWO GAS STATIONS, BAKERY, HARDWARE STORE, BRANCH BANK, FOUR DENTIST'S OFFICES, SEVEN DOCTOR'S OFFICES, SIX LAWYER'S OFFICES (ALL SECOND FLOOR UNITS), TWO BEAUTY PARLORS, A POST OFFICE, BOOK STORE, FIRE HOUSE, LIBRARY, HEALTH CENTER, BARBER SHOP, FURNITURE STORE, TWO DRUG STORES, SPECIALTY MARKET, RESTAURANT, SHOE STORE, ETC.

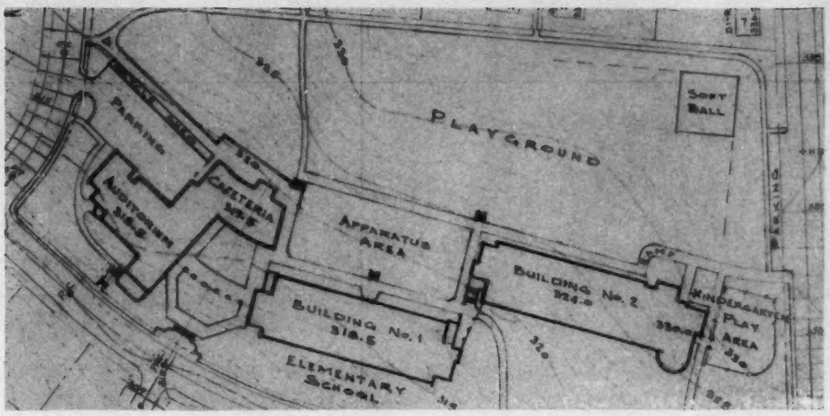


PROVISION HAS BEEN MADE FOR THE ERECTION OF A JUNIOR-SENIOR HIGH SCHOOL AT LINDA VISTA. IT IS A TWO-STORY STRUCTURE HOUSING 22 CLASSROOMS, AN AUDITORIUM, A GYMNASIUM, CAFETERIA, LIBRARY, AND THE NECESSARY ROOMS FOR SCIENCE FACILITIES AND ADVANCED CURRICULUM STUDIES. ABOUT EIGHT HUNDRED STUDENTS WILL ATTEND THE HIGH SCHOOL, ACCORDING TO SAN DIEGO EDUCATION OFFICIALS

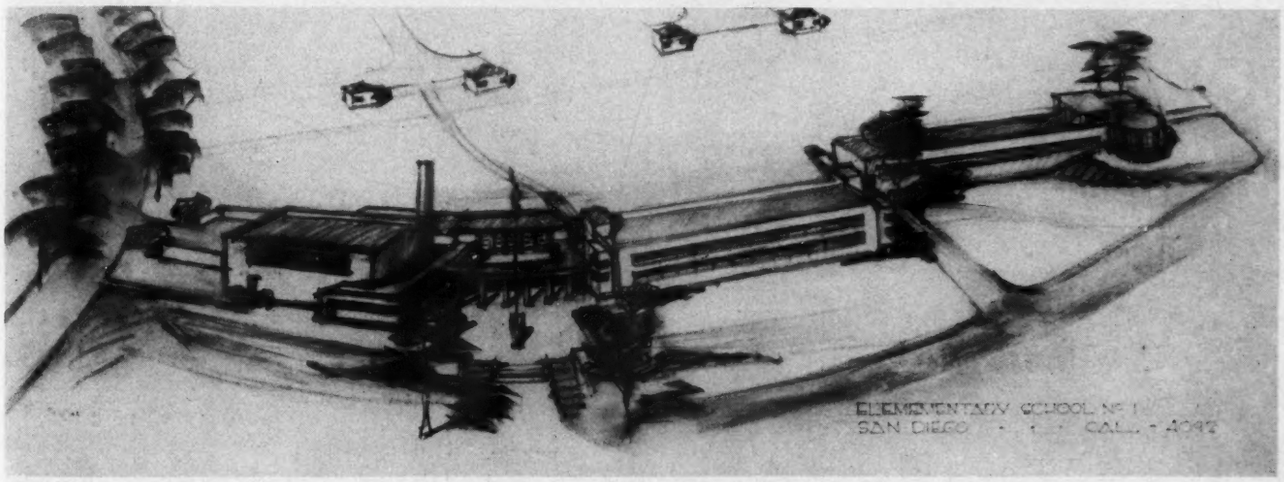


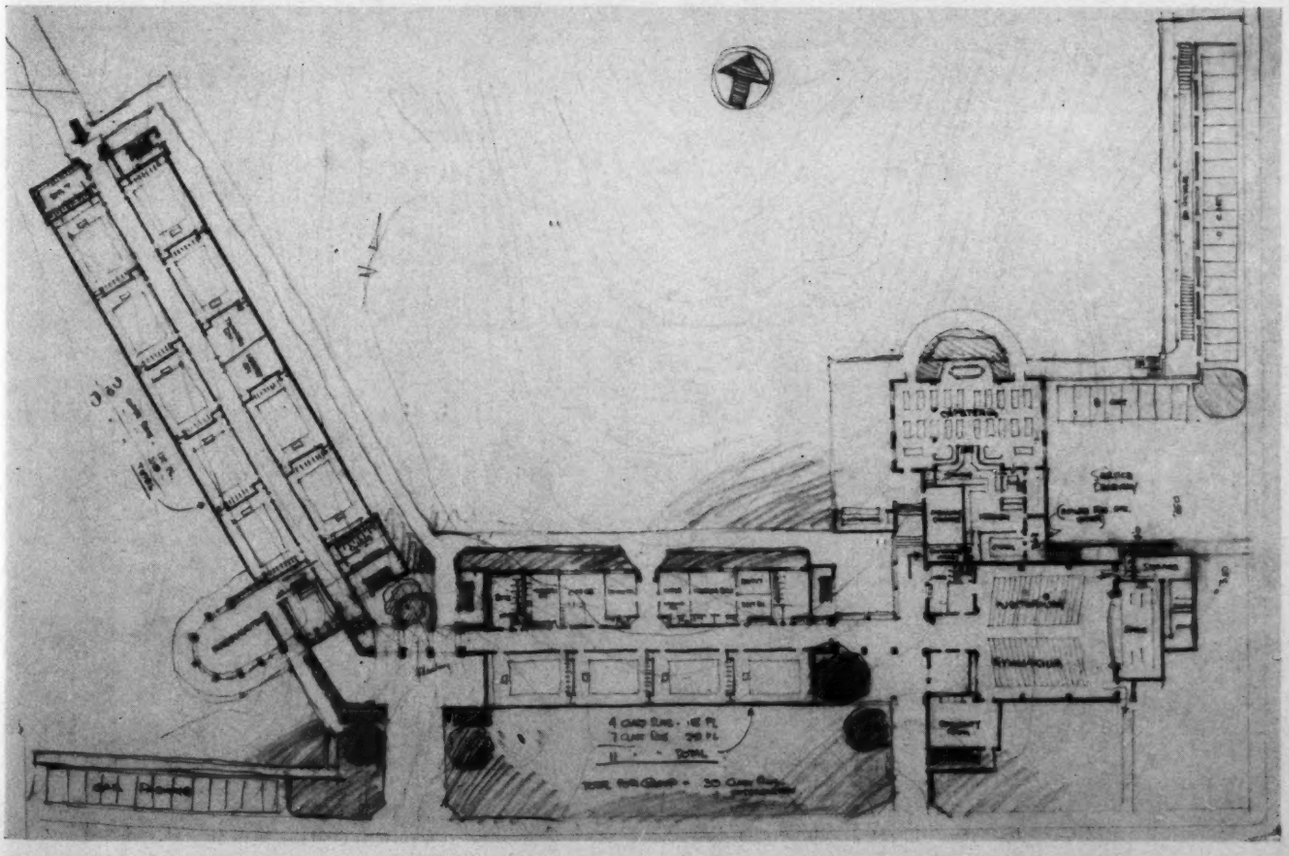
CLASSROOMS ARE HOUSED ON TWO FLOORS, TOGETHER WITH SCIENCE LABORATORIES AND SHOPS FOR NECESSARY MANUAL TRAINING AND VOCATIONAL TRAINING COURSES. TWO SCIENCE LECTURE ROOMS ARE PROVIDED



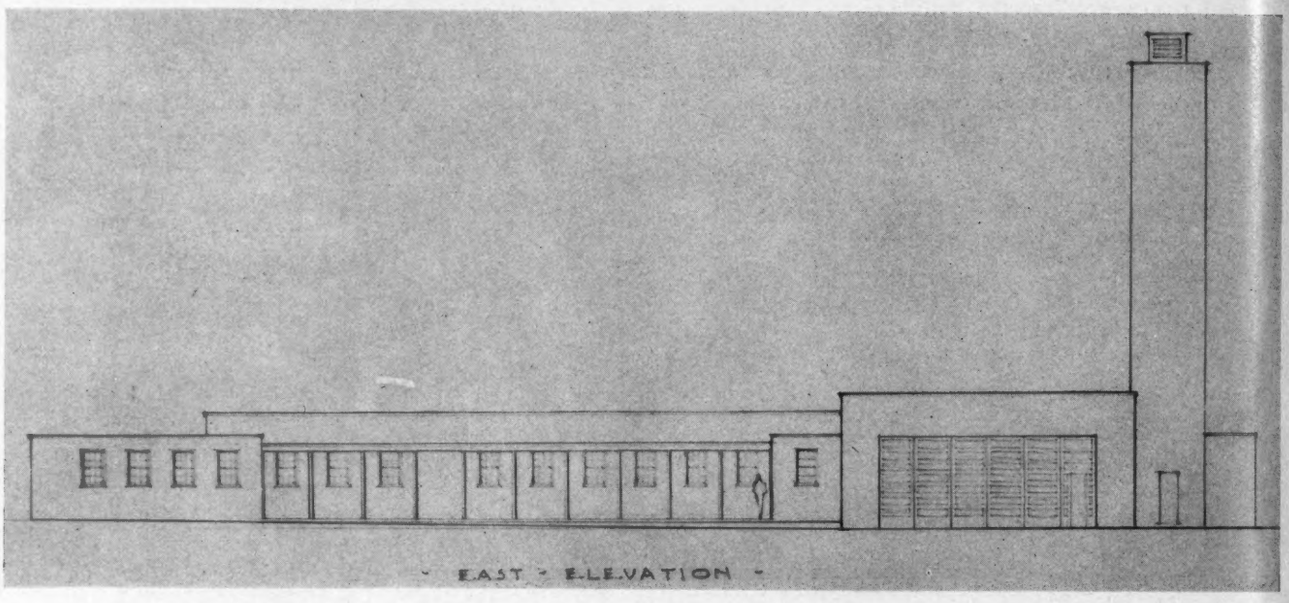


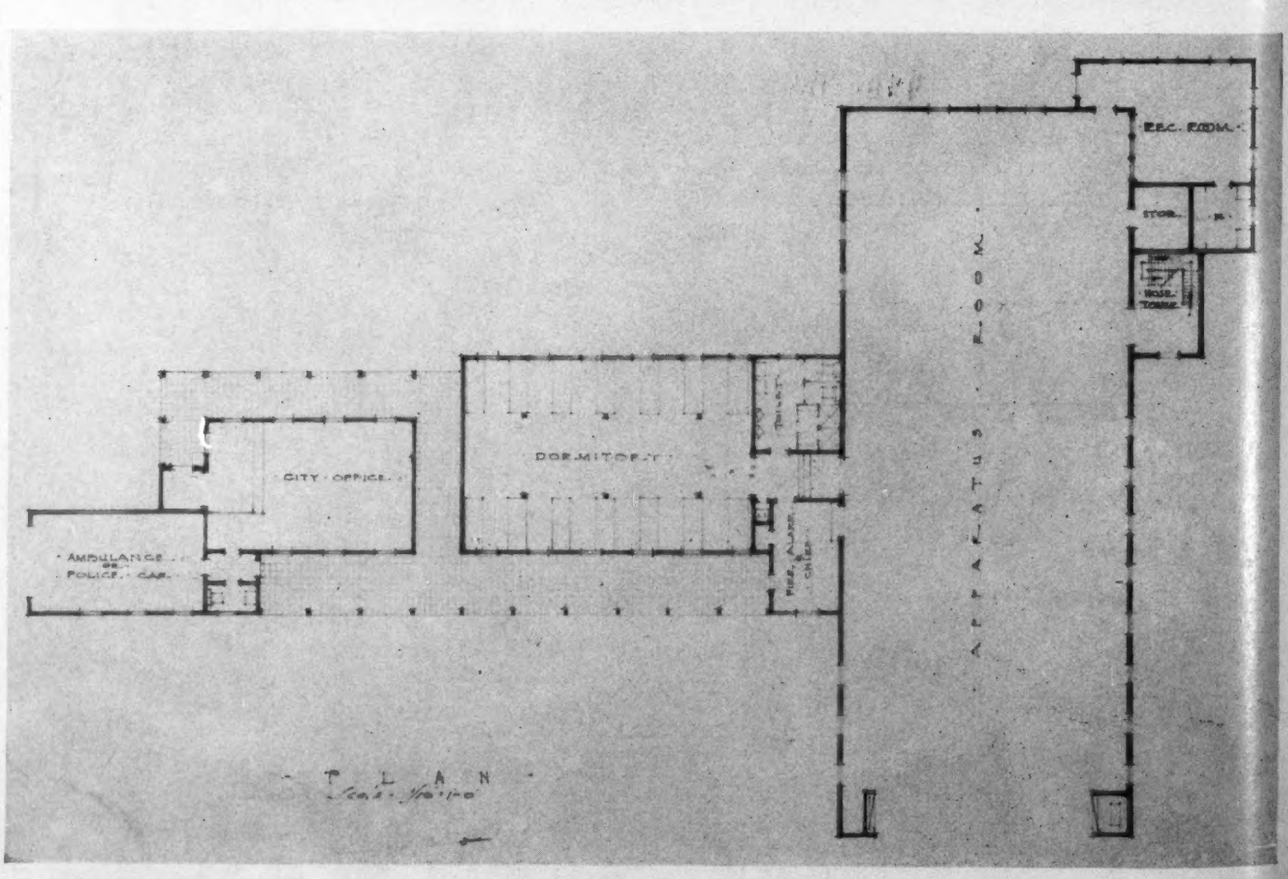
THESE DESIGNS HAVE BEEN DEVELOPED FOR TWO ELEMENTARY SCHOOLS. THE ELEVATION (CENTER) IS SUGGESTED FOR THE SCHOOL SITE (RIGHT). AT BOTTOM OF PAGE IS A FLOOR PLAN SKETCH FOR ANOTHER SCHOOL ON THE SITE. THE TWO DISTRICT SCHOOLS WILL HAVE A COMBINED TOTAL OF 56 CLASSROOMS, PLUS FACILITIES FOR SCIENCE LABORATORIES





THE POST OFFICE (LEFT) AND THE FIRE HOUSE (ELEVATION AND PLAN BELOW) ARE INTEGRAL UNITS IN THE COMMERCIAL - ADMINISTRATIVE CENTER





AIRPLANE VIEW OF FARM WORKERS COMMUNITY NEAR WOODVILLE, CALIFORNIA. SEE PLAN ON NEXT PAGE

FARM SECURITY ARCHITECTURE

AN APPRAISAL BY TALBOT F. HAMLIN

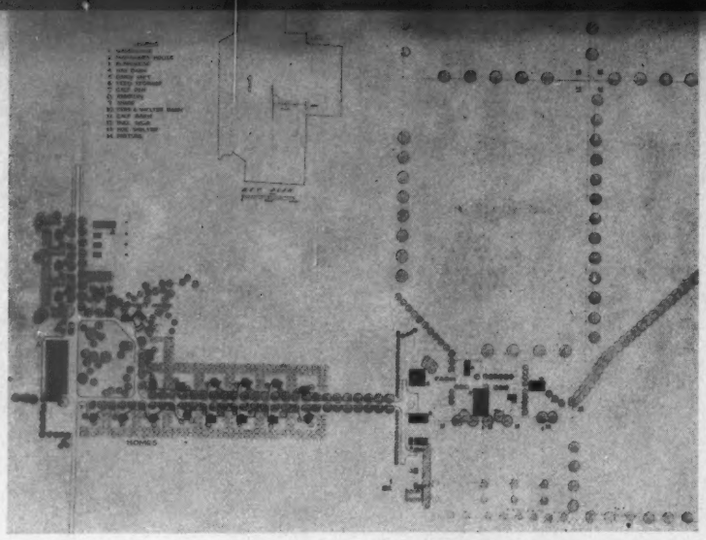
Even before the *Grapes of Wrath* had made the Okies famous, the development of industrialized one-crop farms demanding enormous picking forces for short harvest periods had created the problems of migratory labor; drought and the forcing of small farmers off the land by the increasing development of the same type of industrialized farming increased the problems to dangerous proportions. Were these thousands and hundreds of thousands of people to become pariahs? Were they to be forced into revolutionary violence by the hardships they endured? Or could a way be devised for making them self-respecting citizens furnishing the labor necessary to an important part of our productive economy without losing their rights to a decent life?

That was the question that faced the Farm Security Administration over a large part of the West and the Southwest. To it of course the answers must be carefully thought out sociologically and economically, and on these grounds they were boldly faced. The need was to build an enormous number of shelter units as cheaply as possible with due regard for sanitation and health and at least some consideration of personality development. The extraordinary achievement has been to make this effort, despite the necessary pressure of time, despite the tremendous need for unit economy, nevertheless true architecture.

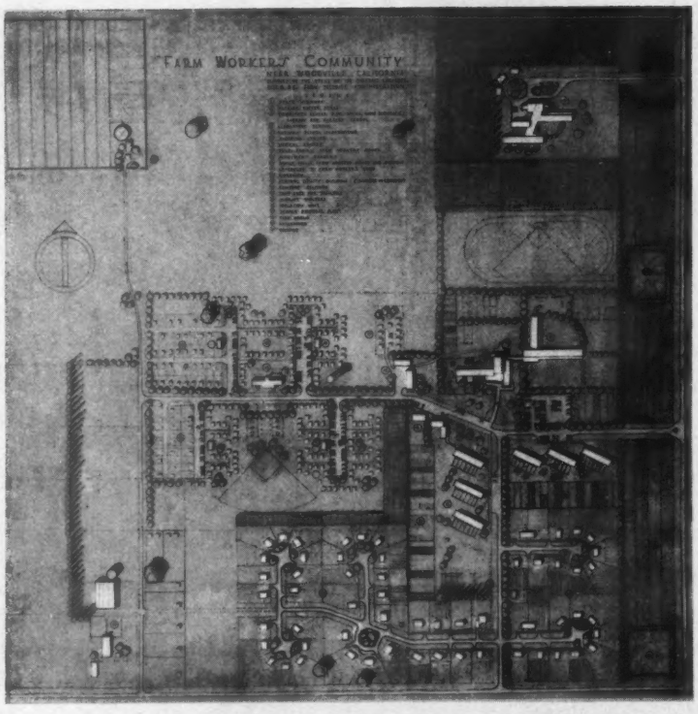
The secret of this success lies in three things: first, the imaginative grasp of what a community consists of; second, the excellent study given to all buildings however modest, and the refusal in this study to be bound by stylistic prejudices or conventions; and, third, the extraordinarily creative use of building materials.

The grasp of community fundamentals led at once to the conception that what was necessary was not mere shelter but rather the creation of a new pattern of community life. In general there seemed to be a need for three different types of family shelter. One was a permanent type, such as the cooperative farms at Mineral King and Casa Grande, where migrants who were able could establish themselves anew. The second type was for semipermanent shelter where families could be housed pleasantly for considerable periods of time and eke out their cash income from temporary farm labor with subsistence farming. The third type was for transient shelter of the most inexpensive type—tent platforms or permanent shelters of almost tent type—in places where the harvest was short. In addition, for the most transient type of employment a type of mobile camp was developed in which the simplest basic facilities for the most primitive yet at the same time carefully planned community life were furnished by brilliantly designed trailers. In most centers combinations of at least two and sometimes three of the different types not only were possible but offered the greatest opportunity.

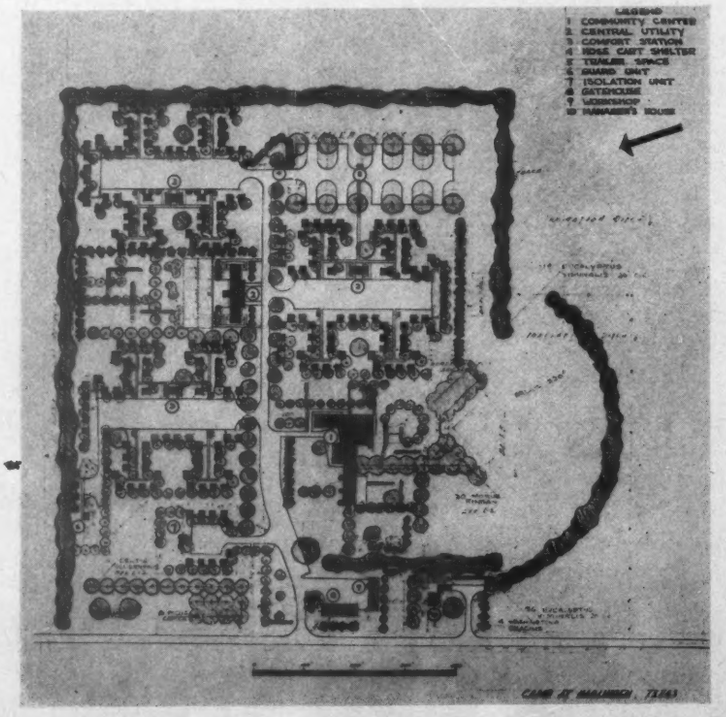
In the analysis of what was necessary for such a camp the whole problem of community living had to be grasped. If the people who were to make use of these camps, were to be helped to a sounder, more healthy,



THE COOPERATIVE FARM AT MINERAL KING, CAL.



PLANS OF WOODVILLE, CAL., AND HARLINGEN, TEX.



more self-respecting life, the communities in which they were to live must be of such a type as to stimulate health, self-respect, and social responsibility. This meant that there had to be means for social meeting, for healthy recreation, and for self help of all kinds as well as a careful consideration of the health problem through the furnishing of clinics, hospitals, and isolation groups for those who were ill. It meant furnishing garden areas for the subsistence farming of the more permanent inhabitants. It meant in some places camp farm groups for the partial support of the community and its necessary permanent employees and permanent inhabitants. It meant school buildings so that the children of the migrants might have the advantage of education.

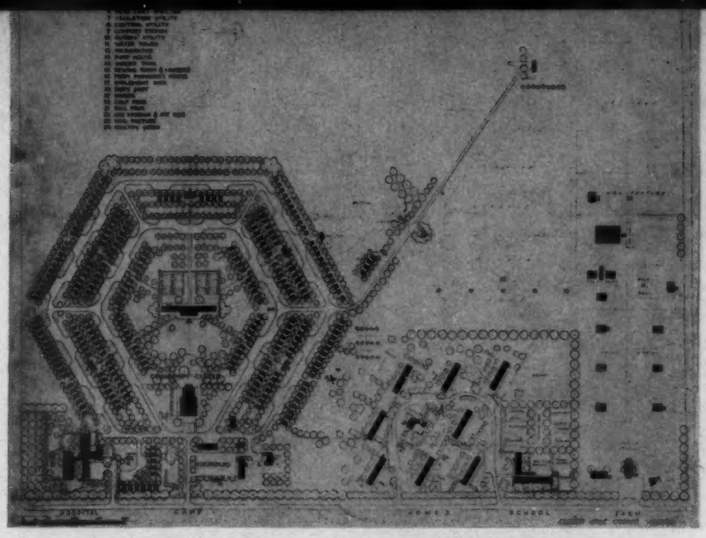
Thus what started out to be a mere matter of furnishing shelters for wandering laborers and their families became inevitably a matter of building highly developed communities with permanent populations of perhaps one hundred to two or three hundred people and temporary populations which might run over a thousand. Furthermore, these villages had to be built on inexpensive land and with the most economical materials; they were in no sense charities or doles—even though partially subsidized as under USHA, so rentals could be kept low enough to meet the needs of one of the least privileged portions of the population. The variety of type in the site plans used is an indication of the imagination of the designers, and the basic workability proves their sound grasp of the necessities. The transient housing falls into a few general classes: either shelters closely spaced around cul-de-sacs with road space sufficient to take the inevitable family car, hexagons or double hexagons that allow continuity of circulation, or in some cases row shelters bordering parking courts. The semipermanent shelters are either small single or double houses, or two-story row houses, usually for six families each and arranged to take advantage of the wind and sun in each locality. This means that they are usually placed in parallel rows, often at an angle to the general axes of the property. The single or double houses are frequently arranged on cul-de-sacs to minimize the amount of road building and give the easiest pedestrian circulation and the greatest amount of space either for allotment gardens, farming fields, or recreation facilities. The permanent shelters like those of the cooperative at Mineral King are frequently arranged along the simplest possible road

arrangement, often staggered in placing to avoid institutional appearance; sometimes cul-de-sac plans are also used.

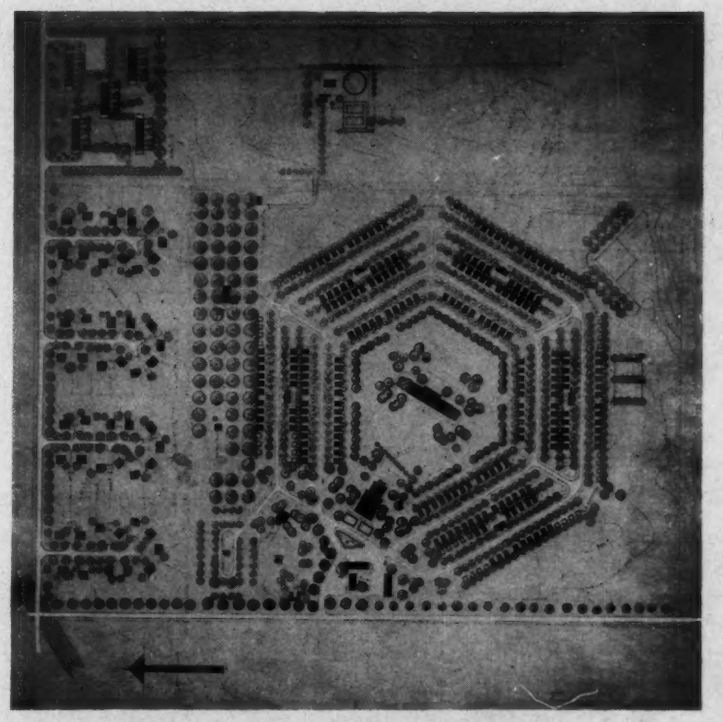
The more common camps designed for more than one type of shelter frequently combine the hexagons for transients with row houses for more permanent inhabitants. In these cases the community buildings are usually placed in an area easily accessible to both, but generally closer to the transients, for it is they who are greatest in number and have the greatest need for intensive community facilities. Rural hospitals and health or isolation groups are usually at some distance on an outlying border of the property and are almost all designed to serve as rural health centers not only for the camps themselves but also for the neighboring districts. Similarly in some cases the community center will also serve areas outside the camp. Interesting varieties of this general pattern are found at Yakima, where the hexagon for transients is replaced by a fanshaped plan and the more permanent housing is in single and double houses off cul-de-sacs; or in the formal rectangular development of Winters, where houses were placed in an existing orchard for shade, and limited terrain means formal arrangement; or at Eleven Mile Corner, a closely organized group with the rows of six-family houses paralleling one side of the hexagon. Another group most interesting in its circulation is that at Yuba City; nowhere else can the skill of the site plans, the ability to produce not only a workable circulation but also attractive variety, be better realized than in the curving road and turnaround that serves the group of parallel six-family rows.

In all of this site planning the problem has been seen as a human and an aesthetic problem as well as a problem in serving practical ends. Thus the most careful use has been made of existing trees, and where definite groves or stands of timber exist on the property these areas have been chosen wherever possible for the community buildings, the schools, and the more permanent houses, so that the migrant driving in dusty after a day's work in blazing shadeless fields or a long run over sunbeaten and windswept highways may find his relaxation in a place dappled with leaf shadows, embowered with trees and with the heartening feel of green and growing things around. Moreover, tree planting and a certain amount of modest landscaping has formed an essential part of all the communities.

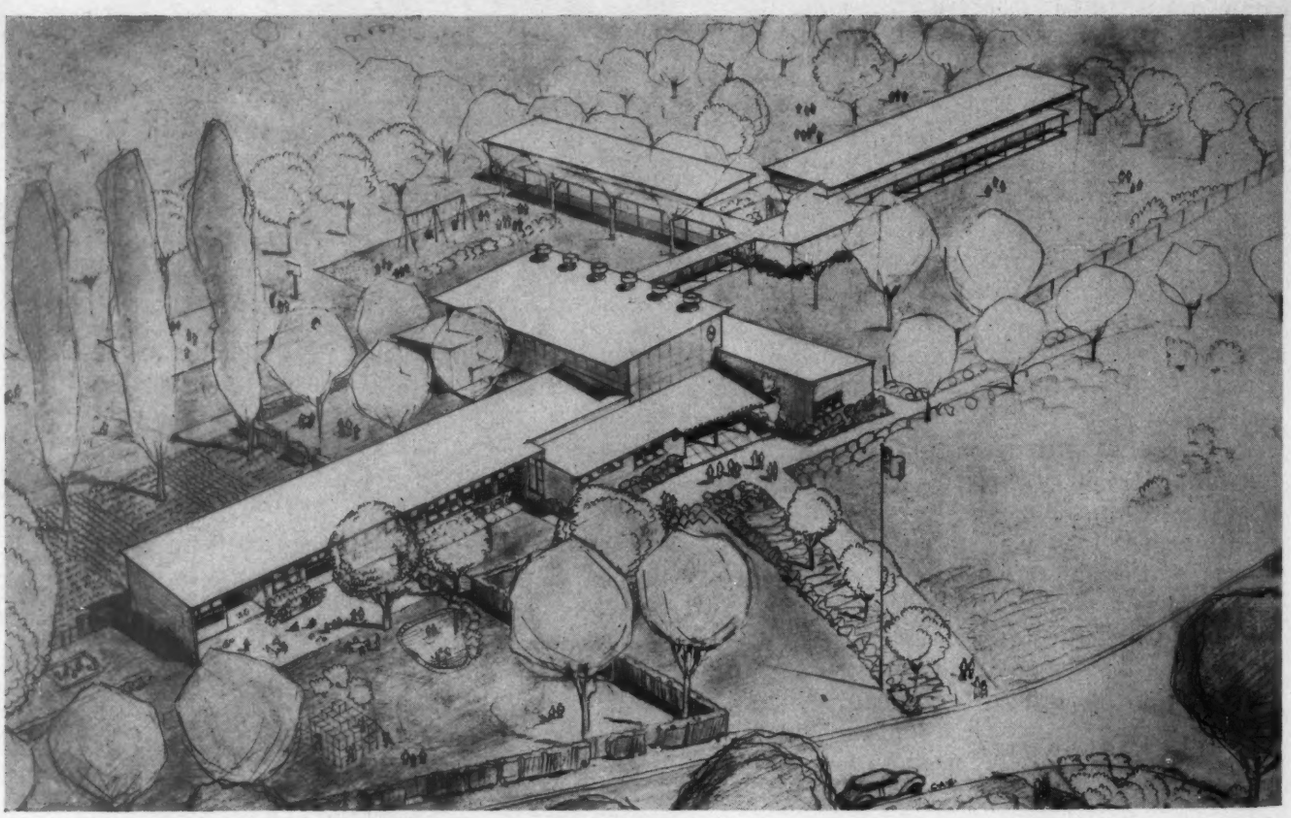
The same imagination can be seen in the community buildings, which vary in size



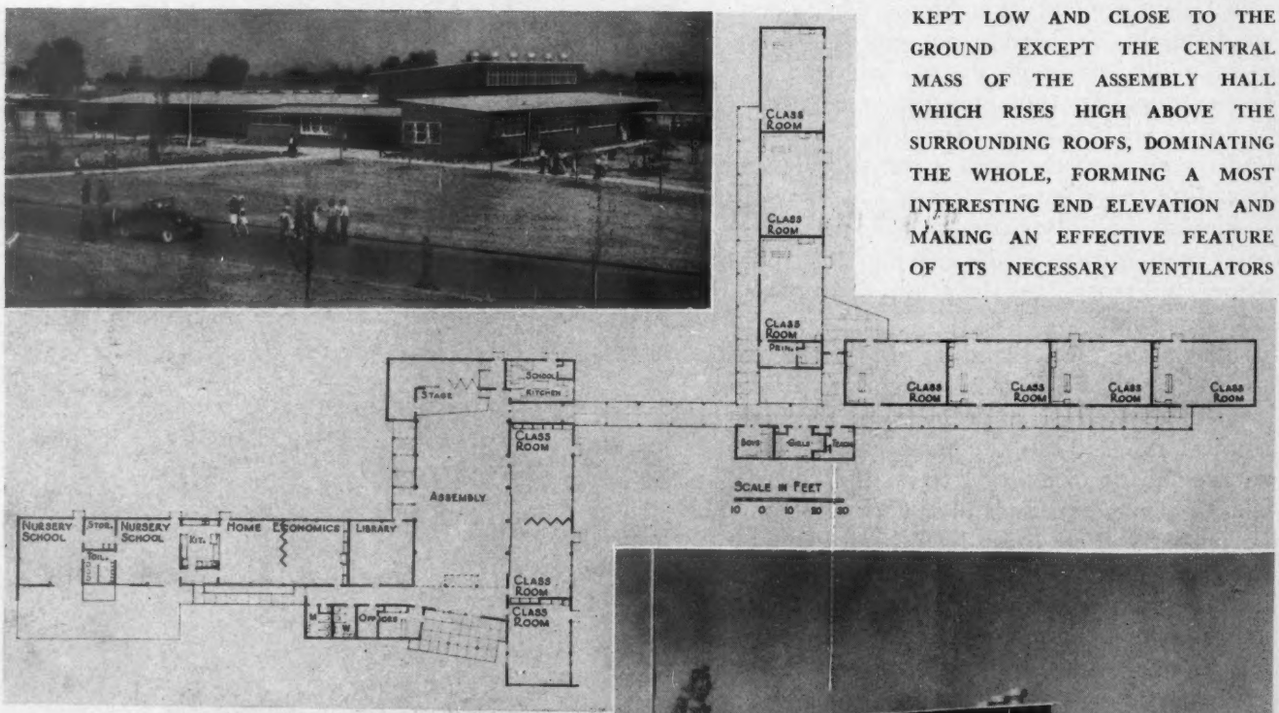
F.S.A. COMMUNITY, ELEVEN MILE CORNER, ARIZ.

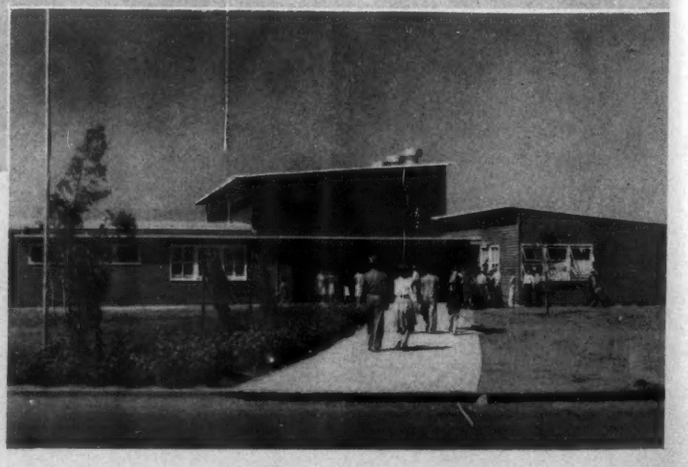


PLAN AND AIR VIEW OF TULARE, F.S.A. PROJECT



IN THE COMMUNITY BUILDING AT WOODVILLE, CALIFORNIA, ALL IS KEPT LOW AND CLOSE TO THE GROUND EXCEPT THE CENTRAL MASS OF THE ASSEMBLY HALL WHICH RISES HIGH ABOVE THE SURROUNDING ROOFS, DOMINATING THE WHOLE, FORMING A MOST INTERESTING END ELEVATION AND MAKING AN EFFECTIVE FEATURE OF ITS NECESSARY VENTILATORS





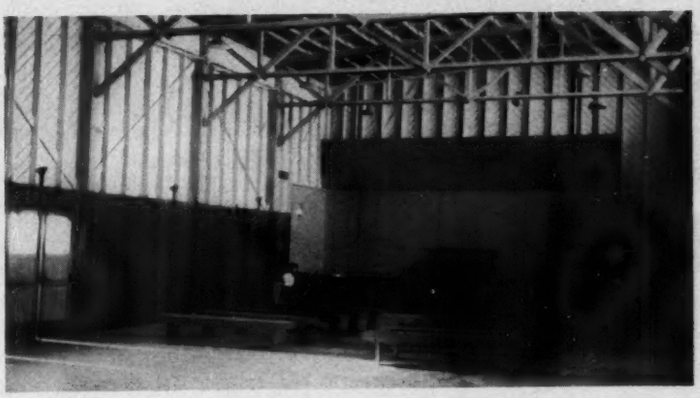
THE ENTIRE GROUP FORMS A CHARMING AND ATTRACTIVE CULTURAL CIVIC CENTER AT LOW COST. ENCLOSED CORRIDORS ARE MINIMIZED AND WHEREVER POSSIBLE EXTERIOR COVERED WAYS TAKE THEIR PLACE. THE BUILDING, INTERESTING AS IT IS IN ITS MASS RELATIONSHIP, IS CHIEFLY A MATTER OF COVERING STANDARD SPANS WITH SINGLE SLOPE OR FLAT ROOFS

from the simple single hall to large structures with separate rooms for a library, for home economics, and for classes or clubs. At Westley one has the problem reduced to its simplest terms—a hall that can be used for meetings, for classes, or for a living-room, flanked on each side by smaller spaces for toilets and kitchens and in front by a raised porch that can serve as a stage for outdoor meetings.

Somewhat larger are a series of L-shaped buildings containing a meeting hall in one wing and laundry facilities or a store in the other, for use by the tenants of the more permanent housing and furnished as a sort of secondary community center in addition to the larger central facilities. These little L-shaped buildings have been constructed of wood as in Yuba City, or adobe as in Chandler, and the way these materials are allowed to influence the design is an excellent example of integration of form and construction. In Yuba City the building is sheathed partly with vertical siding and partly with horizontal clapboards, and the windows are closely grouped in long bands as the rhythm of the wood framing suggests. In Casa Grande on the other hand everything is done to emphasize that continuity of wall which the adobe construction suggests, and the windows are large and simple but widely spaced. Especially interesting are the grilles that ventilate the Coop. Store. That same quality of making interesting masses out of simple, excellently constructed forms controls the larger community centers like those of Woodville and Granger. In both the assembly hall is flanked by classrooms on one side; sliding doors permit the classroom area to be added to the assembly area, and folding partitions allow the classroom space to be subdivided or thrown together.

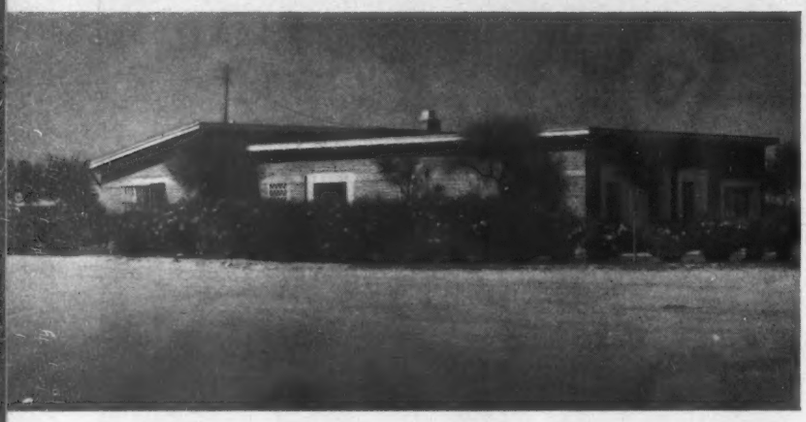
At Granger there is also a health wing with examination and treatment rooms as well as a clinic office and waiting-room; in other projects the clinic is a separate building in connection with the rural health center. There are special play terrace spaces opening from the nursery schoolrooms, and a broad projecting roof gives shelter from rain and sun. At Woodville this community center is linked by a covered way to a seven-classroom school, so that the assembly room can be used as the school gymnasium. Thus one group attractive in its basic proportions and direct in its relationships furnishes flexibly arranged covered areas for child instruction, adult instruction, recreation, and social gatherings, adjustable to almost any use.

WOODVILLE, EXTERIOR AT NURSERY SCHOOL ROOM



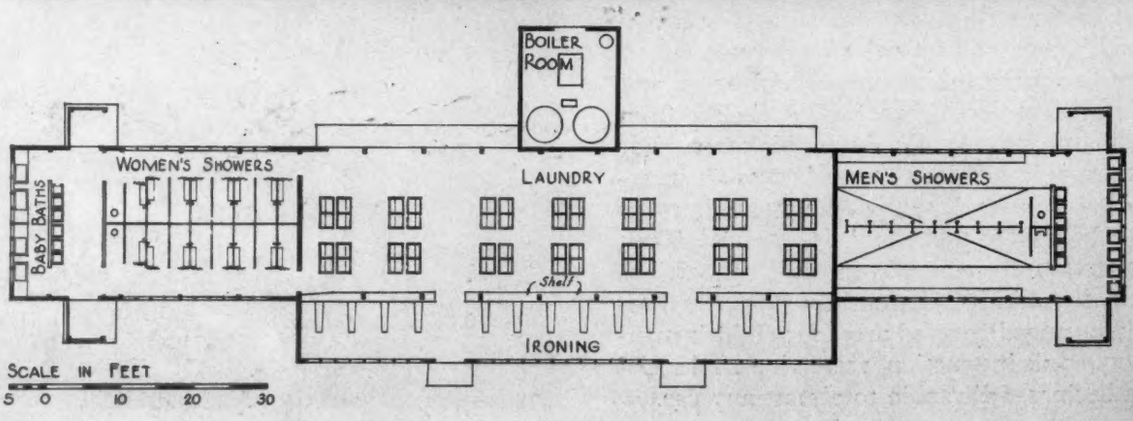
INTERIOR OF ASSEMBLY HALL FACING STAGE

COVERED WAY, AND (BELOW) EXTERIOR DETAIL

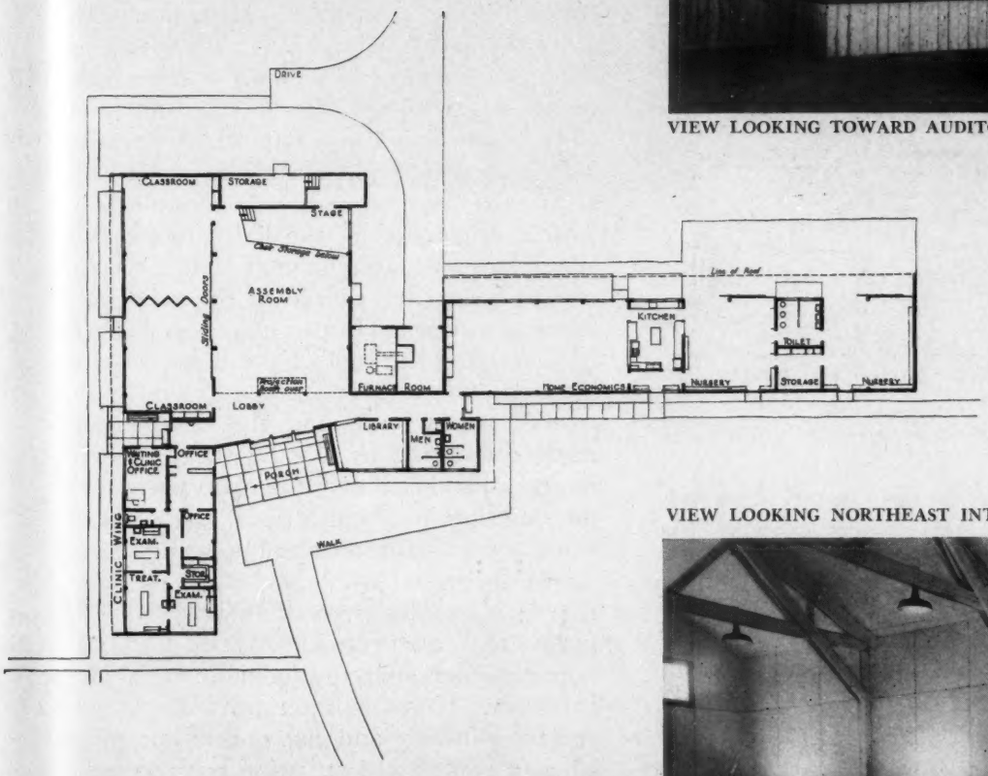


Even the utilities buildings have the same quality of direct imaginative design. The laundry area is usually open to the air on one side at least, with ventilation still further guaranteed by interesting ridge ventilators. The shower rooms are simply placed on either side, and a boiler and water heater room is usually placed in a central position on one side of the laundry. Plumbing is thereby reduced to a minimum, and the long low lines and repeated openings of these buildings—such as those at Yuba City and Woodville—give them excellent character. Even the toilet buildings for the transient centers have the same kind of imaginative design. Nothing has been slurred over, no opportunity for interest forgotten. Thus the interesting louvered ventilator grilles which, combined with the ridge openings, insure perfect natural ventilation are made into an attractive element on the front, and the little screens that give privacy to the entrance doors make interesting end accents.

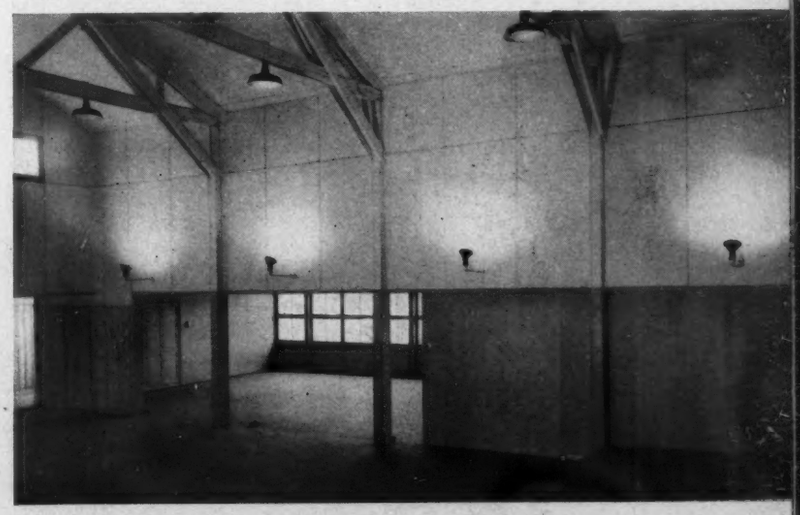
THE TWO SMALL ADOBE COMMUNITY BUILDINGS AT CHANDLER AND CASA GRANDE, SHOWN ABOVE, ARE SIMPLY AND CHARMINGLY HANDLED. EACH CONTAINS A MEETING HALL AND A LAUNDRY OR COOPERATIVE STORE FOR THE TENANTS OF THE MORE PERMANENT HOUSING. BELOW IS THE UTILITIES BUILDING AT WOODVILLE, CALIFORNIA, WITH ITS INTERESTING USE OF VENTILATING LOUVERS AS AN IMPORTANT ELEMENT OF DESIGN. SEE THE SECTION AT THE TOP OF PAGE 716 FOR CONSTRUCTION DETAILS



VIEW LOOKING TOWARD AUDITORIUM STAGE

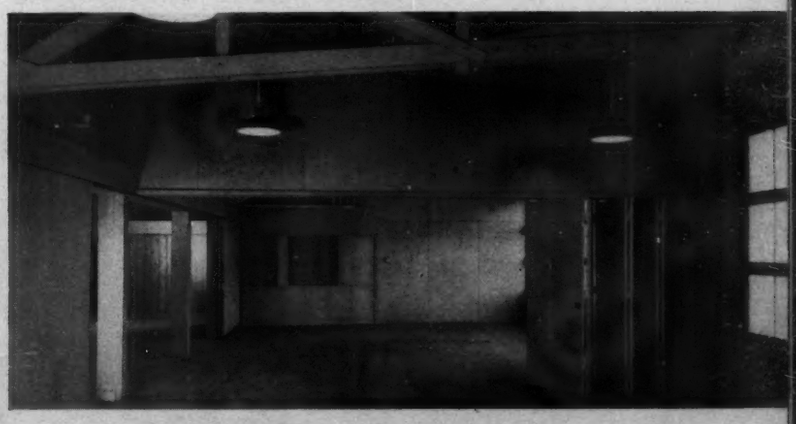


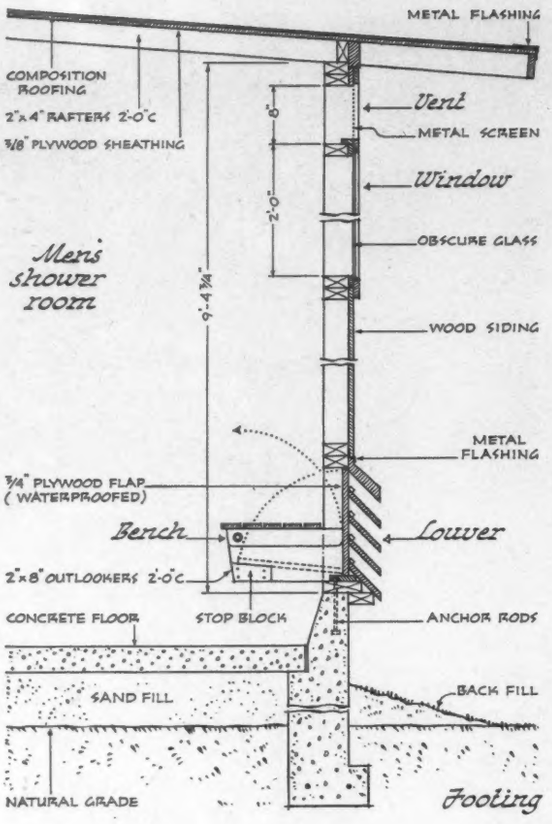
VIEW LOOKING NORTHEAST INTO CLASSROOMS



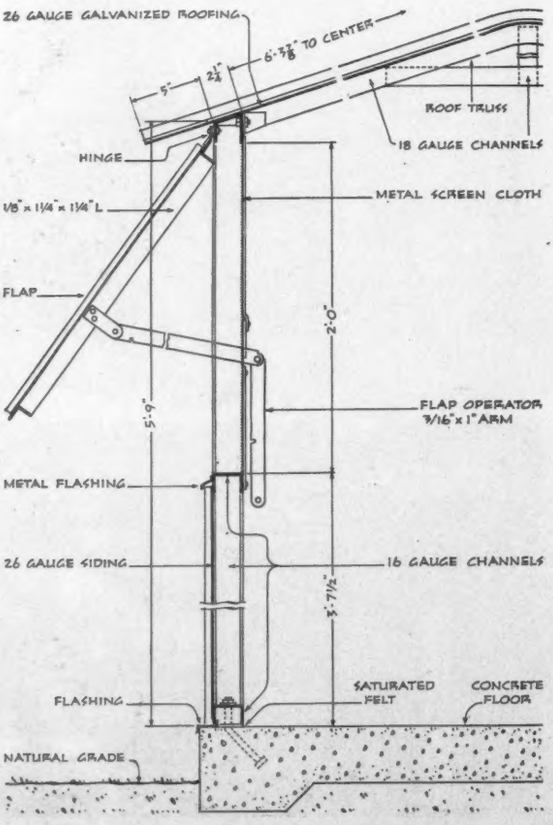
AT GRANGER, WASHINGTON, THE F.S.A. COMMUNITY CENTER BUILDING HAS, LIKE THAT OF WOODVILLE, AN ASSEMBLY HALL FLANKED BY CLASSROOMS ON ONE SIDE WHICH MAY BE ADDED TO THE ASSEMBLY AREA WHEN NEEDED. THE CLASSROOM SPACE ITSELF IS EQUIPPED WITH AN ACCORDION-TYPE PARTITION. BELOW IS A VIEW INSIDE THE MAIN AUDITORIUM ENTRANCE WITH PROJECTION BOOTH

CLASSROOM WITH ITS DIVIDING PARTITION





F.S.A. CONSTRUCTION DETAILS SHOW INVENTIVENESS. ABOVE IS A WALL SECTION FROM THE UTILITY BUILDING AT WOODVILLE. BELOW A DETAIL OF THE METAL SHELTERS USED AT WOODVILLE AND ELSEWHERE, AS SHOWN OPPOSITE

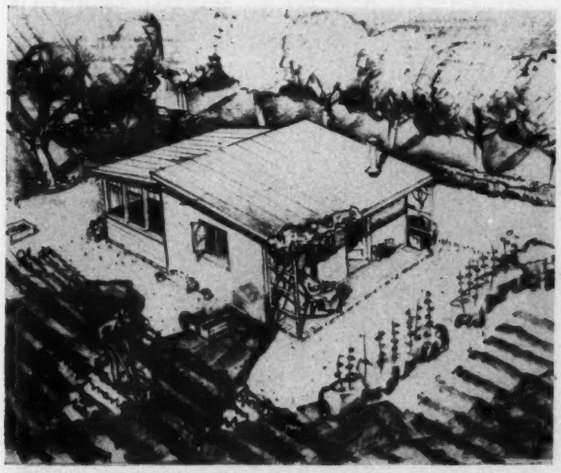


It is in the variety and character of house types that the originality and independence of the designers is perhaps best shown. Even the tent-type shelters of metal have been considered a subject for study as worthy as any of the larger buildings.

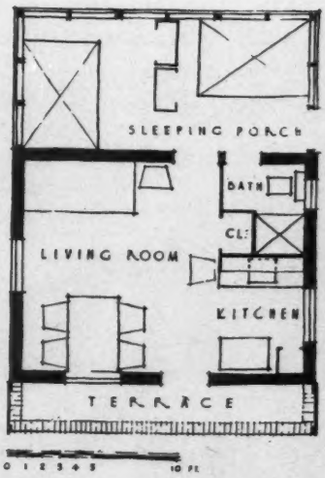
The same qualities are found in the more permanent shelters, the effort always being to provide the greatest flexibility of use and the greatest real privacy with the least possible building of partitions and special finish. The little houses at Arvin are typical. Essentially they consist of but one room with a sleeping porch behind it. In the corner of the main room, a bath with a toilet and shower is partitioned off; the remaining end of the room serves as a kitchen. Two cabinets in the sleeping porch divide it into two areas each large enough for a double bed, with a single bed in the living-room; this gives adequate sleeping and living accommodation for five people in the most economical manner. Human quality is derived by projecting the roof of the house toward the front over a covered terrace with simple lattices at the end, and the composition made interesting by sloping the roof over the porch and that over the main portion of the building in two directions. Thus out of what is essentially an absolutely minimum family shelter a little house of considerable charm is produced, well ventilated, furnished with all necessities, yet at low cost. The garden houses at Woodville are slightly larger. Here flaps on the sunny ends replace windows and not only allow more efficient shade and ventilation but also guarantee privacy and add to the architectural interest. Of the larger individual houses the most interesting to me are the bungalows at Mineral King, with their attached car shelters, and the long low adobe houses at Chandler. Another excellent type is found in the little houses of Glendale, Arizona, with their ridge ventilators, their vine-grown entrance porches, and the concentrated adobe wall surfaces.

The creative approach is shown especially well in the two-story row houses found in so many of the larger developments. The buildings are laid out in 16-foot units. The stair with a storage closet beneath it leads directly from the living-room. Back of the stair the kitchen equipment is grouped against the wall but separated from the living-dining space only by a thin screen at one end, so that the entire space of the first floor counts as one and the apartment seems much bigger than it is. The stair comes up to a little hall on the second floor just large

THE TENT-LIKE METAL SHELTERS DEVELOPED BY THE F.S.A. DESIGNERS FOR TRANSIENT POPULATION AND USED AT A NUMBER OF CAMPS HAVE BEEN CAREFULLY STUDIED. THEY CONTAIN A SINGLE ROOM, WELL-VENTILATED, WITH NO SACRIFICE OF PRIVACY. A PORCH AT THE FRONT, EQUIPPED WITH SHELVES, GIVES PROTECTED WORK SPACE. THE SECTION AT THE BOTTOM OF THE FACING PAGE SHOWS THEIR CONSTRUCTION. FOR THE MORE PERMANENT MEMBERS OF THE COMMUNITIES LITTLE HOUSES OF A VARIETY OF TYPES HAVE BEEN DEVELOPED. THOSE SHOWN BELOW ARE TYPICAL OF THE SIMPLE, DIRECT HANDLING



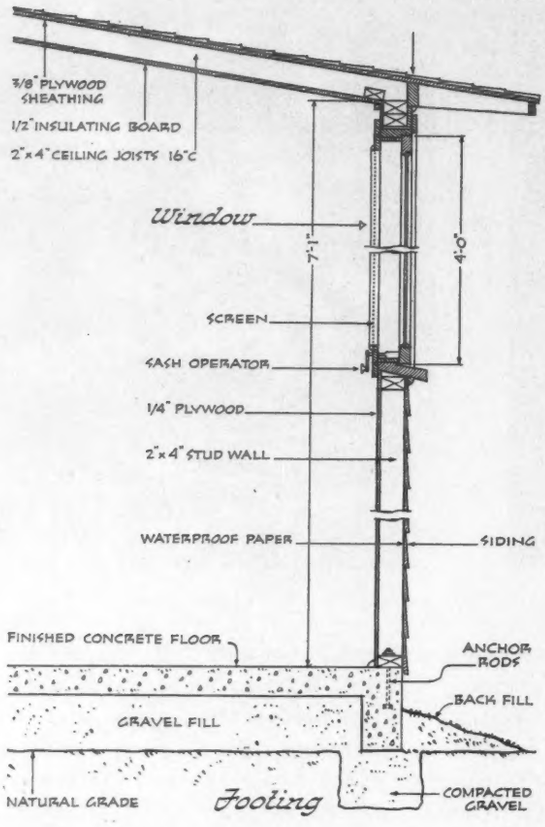
HOUSE AT ARVIN



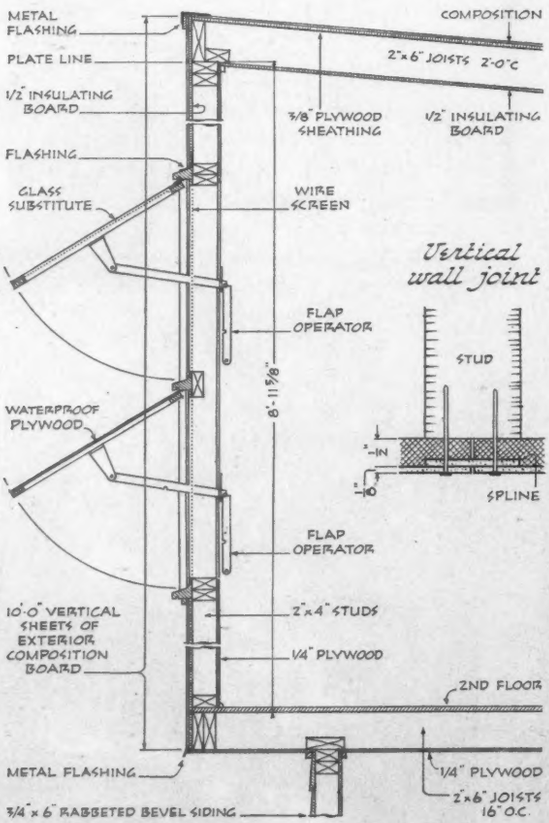
ARVIN HOUSE

COMMUNITY BUILDING, GLENDALE

GARDEN HOUSES, WOODVILLE



ABOVE, SECTION OF FARM LABOR HOME AT WOODVILLE, AND BELOW, DETAIL SHOWING TREATMENT OF MULTI-FAMILY ROW HOUSES AT YUBA CITY AND ELSEWHERE AS ILLUSTRATED OPPOSITE

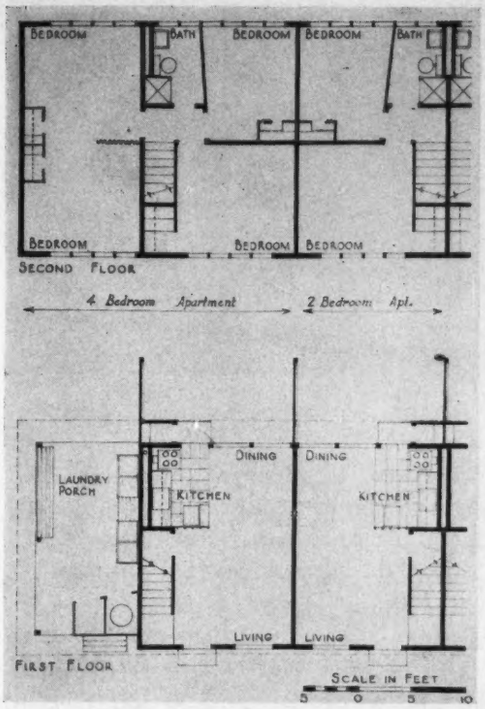


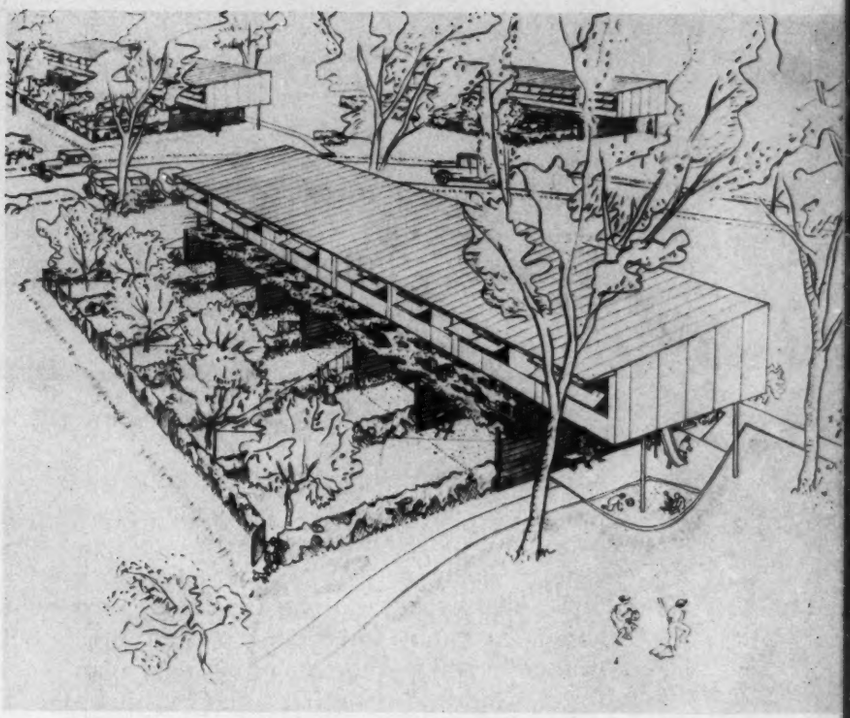
enough for the doors into the bedrooms and the bath. Each bedroom has a closet, small but sufficient for the clothes such families as are likely to use the house will have.

In each row the upper floor projects at the ends one whole unit beyond the lower floor, the projection being held up on the simplest of columns; the open space thus gained is used as a laundry porch at one end and a children's play porch at the other, and the area above it forms a dormitory that can be divided by a curtain into two bedrooms; space is thus allowed for two unusually large families in each of the rows. The upper floor is also wider than the lower floor, and its projection forms a shelter over the kitchen door and the living-room windows adjacent. This, combined with screened walls running out toward the back yard, makes an additional, quite private, outdoor living space for each family.

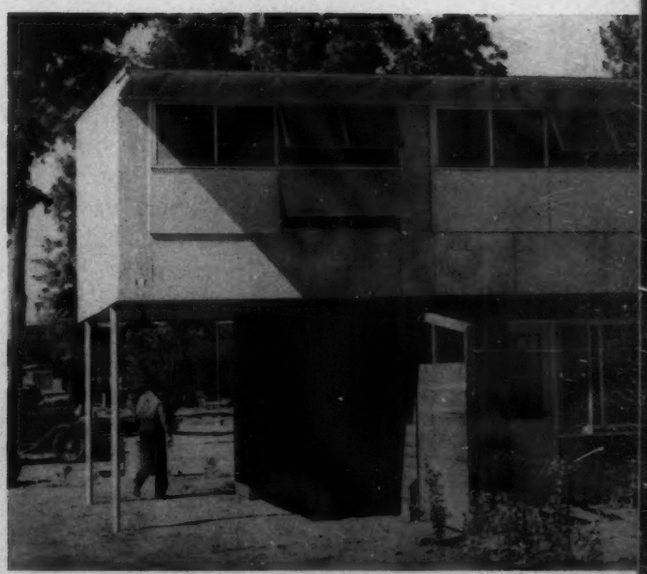
The same quality of independent thinking is found in the exterior and interior treatment. In Chandler, Arizona, the units are separated by heavy cross walls of adobe forming a strong rhythmical pattern. In the other row houses the construction is of frame of the simplest type, covered with stained redwood siding beneath and wallboard above. The long horizontals created by this treatment, combined with the interesting manner in which the rows are arranged, give to these portions of the communities an effect of great variety, harmony, and loveliness. The kitchen equipment is of the simplest, and everywhere there is a sense of such careful arrangement and such basically pleasant proportions that the total effect is one of marked attractiveness; even the diagonal underflooring of the second floor, which shows unashamedly, takes its part in the entire composition.

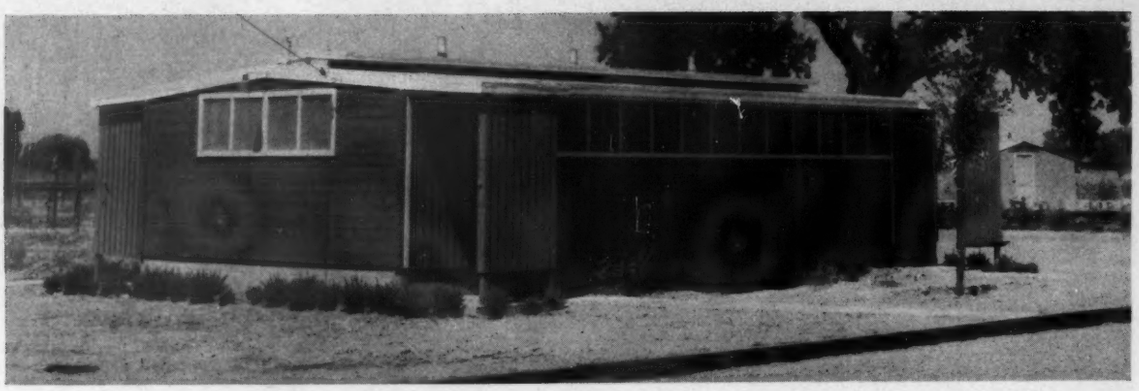
The details of the actual construction of all these buildings are extraordinarily interesting because they show how the need for economy, creatively conceived, can itself become a means to new and beautiful architectural forms. Apparently the San Francisco Architectural Office of the F.S.A. approached every problem of architectural design, in big as in little ways, with complete freshness and innocence of mind. It had no fixed ideas as to windows or doors or interiors or exteriors. Nothing seems to have inhibited its logical approach to each problem; no foreordained picture of what had been done or what was usual held it back. Where conventional methods and forms seemed logical they were used, as for instance in many of the smaller farm-labor





THE TWO-STORY MULTI-FAMILY DWELLINGS USED IN A NUMBER OF F.S.A. COMMUNITIES FOLLOW THE SCHEME INDICATED BY THE PLAN AND PERSPECTIVE SKETCH ABOVE. EACH ROW CONTAINS FOUR TWO-BEDROOM UNITS AND TWO FOUR-BEDROOM UNITS. TYPE OF CONSTRUCTION VARIES FROM ADOBE, AS AT CHANDLER, ARIZONA, TO WOOD AND COMPOSITION BOARD, AS AT YUBA CITY AND ELSEWHERE





EVEN TOILET BUILDINGS FOR TRANSIENTS SHOW DESIGNERS' IMAGINATIVE USE OF NECESSARY ELEMENTS

homes where ordinary stud construction was used with bevel siding over waterproof paper in a quite normal way, the only new element being perhaps the use of ⅜-inch plywood as a roof sheathing (a material used almost constantly for this purpose through this work) and also the use of plywood as an interior finish. Interesting is the fact that a finished concrete floor slab over a gravel fill forms also the foundation of the house—a method perfectly satisfactory where, as here, no deep frosts are to be expected.

In the multifamily houses this independence of approach has controlled the entire exterior design, and the hinged-flap ventilators that take the place of windows are handled in such a way as to minimize trim and frame members. Notice too the complete simplicity of the joint at the corner of the overhang. This method of design leads to a minimization of trim members and moldings and is at least partly the reason why these exteriors have such a fresh, clean, and beautifully clear expression. Had the designer faced with the same plan said to himself, "These are rooms; of course they will need windows," and used the normal double-hung or casement sash, not only would the combination of shade, shelter, and ventilation been much more difficult to achieve, but the entire quality of horizontal accent that makes these buildings what they are would have been lost.

Where more complex uses are present the same careful study has led to types of detail even more independent. For example, in the utility buildings and the toilets, where ventilation is a primary consideration, the whole handling of the ventilating louvers has been made into a basic factor in design. Notice how in the utility building section given a hinged cover behind the louvers can be either dropped down beneath the bench to allow a full sweep of air or, when the weather is colder, closed. This has obviated the necessity of opening windows and allowed the obscure glass to be fixed permanently in place, and the continuous 8-inch vent above the glass is covered with simple netting cloth.

In these Farm Security developments through the far western states there lies, I think, a great lesson for the everyday architect planning the everyday building. This particular kind of imaginative and creative approach to a problem, in general and in detail, is not by any law that I know of limited either to government-financed or low-cost buildings. It certainly is not necessary, because one has a little more money to spend, to become at once bound by old conceptions of doors and windows and walls and roofs. In any building each architectural detail exists for a definite purpose, and the building itself is built because of a human need. Could we but learn to study these human needs as freshly and independently as they have been studied in these communities, if we could but analyze the purposes of each building part with as little dependence on convention or past usage, could we but think in as powerful a manner of the necessary integration of form and use and structure, there would be no limit to the architectural progress we might make. These communities are human and attractive because their designers understood people and their needs, and insisted that all of those needs—intellectual and emotional as well as physical—should be taken care of. They are beautiful because designed by artists, to whom creation was not limited by any economic deadline and to whom it was as necessary to think in creative form terms of a privy as of a community center. They are satisfactory because within their limitations of necessary economy each practical problem was approached not only as a means to a physical end but also as a means to a new and beautiful creative form.

BANTAM, CONNECTICUT

AMERICA'S SMALLEST DEFENSE HOUSING PROJECT

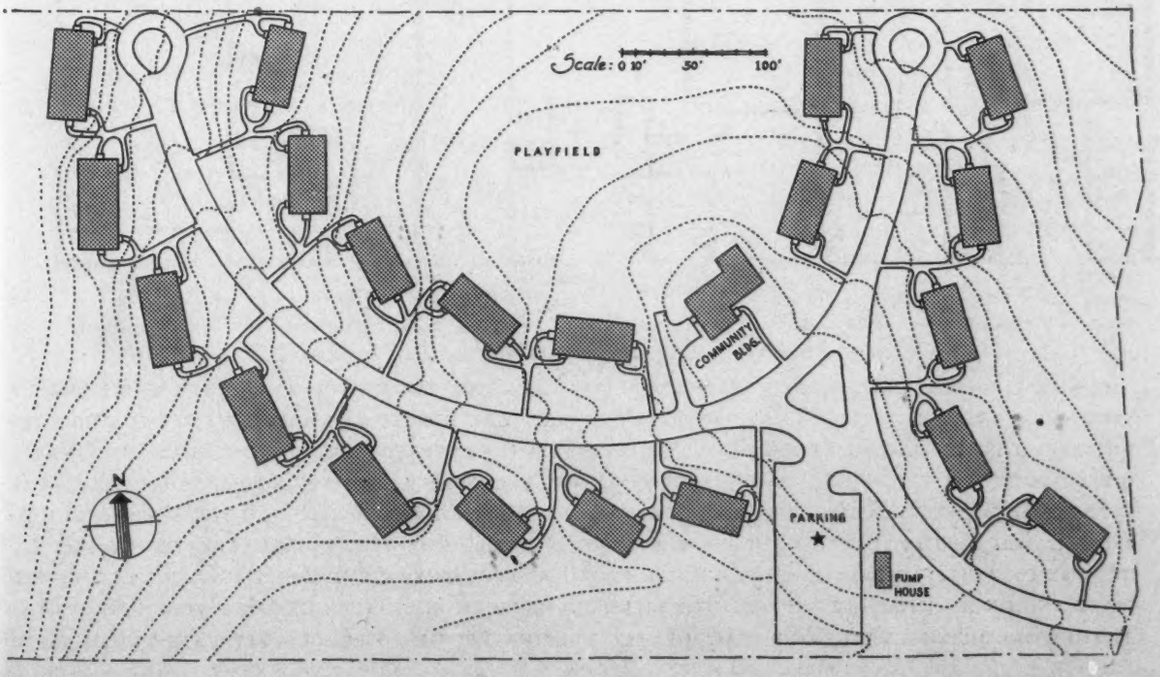
BY ROBERT I. HOYT

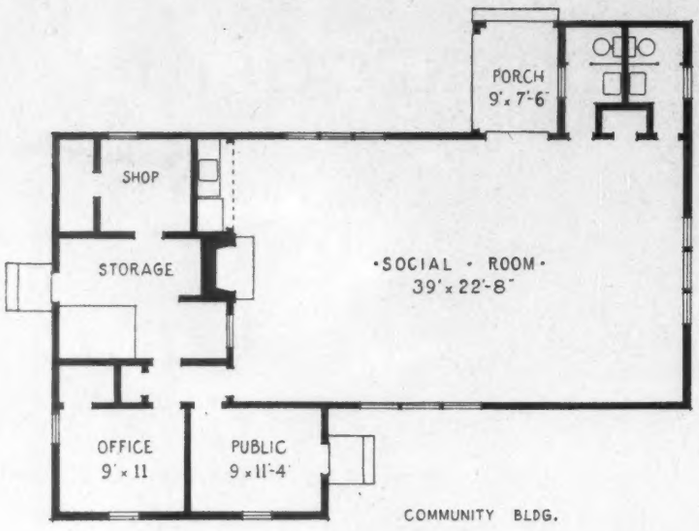
Rarely does one find a successful and expanding industrial establishment in an area otherwise almost completely rural in character. The Bantam, Conn. housing project is unique in that it is not only the smallest industrial defense housing development in the country, it is unlike other housing developments which are crowded into highly urbanized areas adjacent to the familiar sort of industrial development.

The Architect, David C. Sanford, Jr., was confronted with a two-fold problem—that of developing a plot to support forty dwelling units, and the allowance for possible expansion should further factory expansion demand this. From the beginning it was thought desirable to disturb the land as little as possible, for both economic and æsthetic reasons, and to maintain a rural character in the project through easy, rational layout, and selection of building forms and materials normally found in such a location.

The high point of the site was given over to the Community Building, and other sites were considered for residential buildings. Roads were then laid out to serve these buildings. Lot lines were studied, though the present single ownership may not even survey them. These suggested lots may thus be readily sold at some later date, yet there may be maintained a protective strip of land along all property lines for the benefit of

BUILDINGS ARE PLACED IN SUCH A MANNER THAT THEIR LENGTH PARALLELS THE GRADE OF LAND, MINIMIZING CUT AND FILL. THE GRADE HAVING ESTABLISHED A FANNING-OUT OF THE BUILDINGS ALONG THE ROAD, THOSE NOT SIMILARLY AFFECTED HAVE BEEN BROUGHT INTO HARMONIOUS CONFORMANCE WITH THEM. SITE DEVELOPMENT WAS AT EXCEPTIONALLY LOW COST PER UNIT. SITE PLANNING ASSISTANCE WAS BY ROBERT I. HOYT. GILMORE D. CLARKE AND MICHAEL RAPUANO WERE THE LANDSCAPE ARCHITECTS



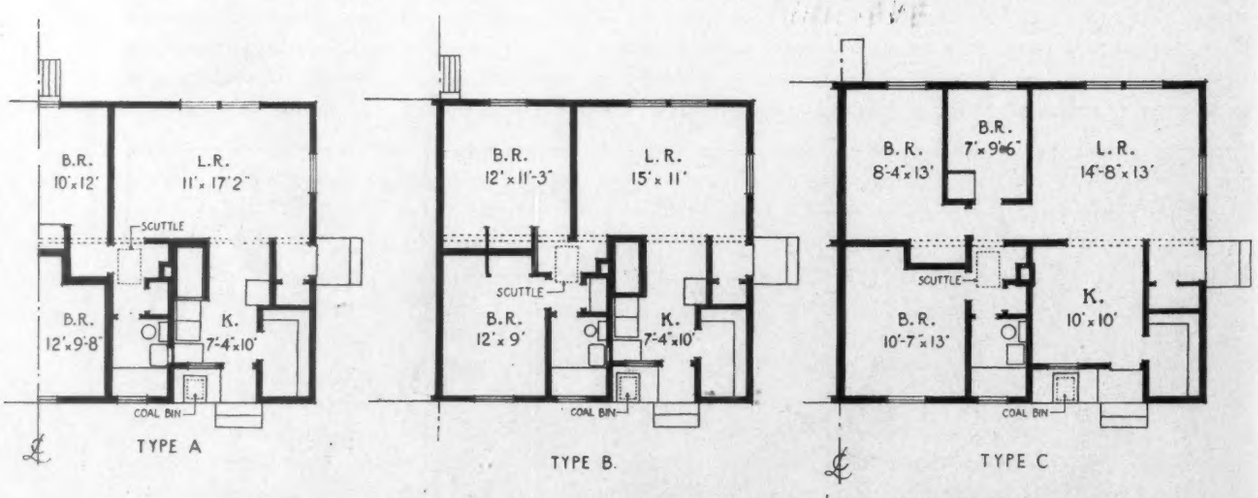


COMMUNITY BLDG.

THE COMMUNITY BUILDING MAY BE MAINTAINED BY A COMMUNAL ORGANIZATION MADE UP OF THE LAND OWNERS AS HAS BEEN DONE SO SUCCESSFULLY IN OTHER PLACES. THE PLAN PROVIDES FOR A SOCIAL ROOM, OFFICE, PUBLIC SPACE, AND A STORAGE ROOM AND SHOP SPACE

the community as a whole. The road is considered but a means of access to the residences, and the kitchen doors are faced toward it, incidentally cutting the length of the paths. Private gardens may be developed on that side of the structures commanding the better outlook. Lots on the inner side of the road curve open upon the playfield. The budget precluded building garages at this time, but the Architect has considered their possible future erection. This may be done through the simple expedient of building drives between the buildings on the line of the present paths to serve double garages or carports placed slightly to the rear of the buildings.

The kitchens, as may be seen from a study of the unit plans, are not particularly well lighted, despite one casement window and a glazed door. This was dictated by the desire for simplification of the utility layout which, in combination with the demand for storage space, seems to have been a difficult thing to handle. The necessity for a separate utility room has been eliminated by the inclusion of a combination range and space-heater in the kitchen. Both units burn coal. Construction is simplified as much as possible, and the use of stock lumber lengths without undue cutting worked in where possible. All details of carpentry and masonry were designed with local workmen in



THE DWELLINGS ARE DESIGNED FOR SIMPLE AND EASY LIVING OF THEIR OCCUPANTS, WITH THE BUDGET A STRONG FACTOR IN DETERMINING ALL POINTS OF DESIGN. THE UTILITY ASSEMBLY OF KITCHEN AND BATH EQUIPMENT IS STANDARDIZED FOR REASONS OF ECONOMY. THE COVERED ACCESS AT THE KITCHEN ENTRANCE GIVES SHELTER AT THE MOST-USED EXTERIOR DOOR AND FURNISHES A SUCCESSFUL MEANS OF PASSING COAL INTO THE KITCHEN BY MEANS OF A SIMPLY-CONSTRUCTED BIN EXTENDING THROUGH THE WALL, AND HAVING A HATCH ON THE EXTERIOR AND DOORS ON THE INTERIOR. THE FRONT HALL, CREATED BY THE EXTENSION OF A BAFFLE PARTITION IS UNUSUAL IN LOW-COST PROJECTS, BUT SEEMS JUSTIFIED IN THIS CLIMATE AND ON A SOMEWHAT UNPROTECTED HILLSIDE. UN-COMMON FEATURE OF THE KITCHEN EQUIPMENT IS THE COAL-BURNING RANGE AND SPACE-HEATER, ELIMINATING THE NEED FOR A SEPARATE UTILITY ROOM

EARLY STUDIES FOR THE BUILDINGS REVEAL SINGLE - FAMILY DETACHED - DWELLINGS, BUT THROUGH DIFFICULTY IN OBTAINING SUCCESSFUL LOT ARRANGEMENT AND LOW UTILITY COSTS THESE ARE BROUGHT TOGETHER TO FORM SINGLE-FAMILY SEMI-DETACHED-DWELLINGS. THE SOMEWHAT TRADITIONAL APPEARANCE OF THE BUILDING IS THE RESULT OF A STRAIGHTFORWARD USE OF WOOD AS A BUILDING MATERIAL, AND OF A DESIRE TO CREATE A GROUP OF STRUCTURES THAT WOULD BE POPULARLY SALEABLE AT SOME FUTURE DATE

mind, that they might not be foreign to their past experience and cause unnecessary delay in the justly stringent calendar determined for the progress of the construction. Ordinary wood frame is used on concrete block foundation walls, and all interior surfaces are of wall board. In character with the desire for rural atmosphere, the exterior walls are of rough-sawn white pine siding, treated with heavy-bodied stains, varying in color with the buildings. The natural weathering will aid the aging of the project and its proper settlement into its surroundings. Many indigenous trees and shrubs will be planted in a simple, natural pattern throughout the site as is desirable to aid the appearance of the buildings, and to provide æsthetic relief and shade. Only that part of the property near the buildings which has been scarred by construction operations is to be graded and seeded for lawns. It is hoped that the rest of the land will be left in its present natural form with the fields of flowers and the gray stone walls to remain where possible and maintain the truly rural character of the project.

THE SITE, WHILE HAVING ALMOST IMMEDIATE ACCESS TO THE FACTORY, IS CUT OFF FROM IT BY INTERVENING TREES AND THE CURVE OF THE HILL UPON WHICH IT IS SITUATED. THE LAND OVERLOOKS A TYPICALLY PICTURESQUE AND CHARMING CONNECTICUT VALLEY. FROM THE COMMUNITY BUILDING THE PLOT FALLS AWAY IN AN EASY GRADE THAT LENDS ITSELF READILY TO THE PLACING OF ROADS AND BUILDINGS

INDIAN HEAD EXPERIMENT IN PREFABRICATION

AN ANALYSIS BY FREDERICK GUTHEIM

Certainly the most spectacular of the defense housing projects is that at Indian Head, Maryland, where the best efforts of ten housing prefabricators are building 650 houses. Here defense housing hopes to get closer to the ultimate solution of the demountable house problem.

What did prefabrication have to offer this quest for a good demountable house? Could the techniques of mass production, interchangeable parts, modular design be harnessed to the solution of defense housing's principal problem?

It was not expected to produce a "model home" that would bring patent medicine relief to defense housing; it was not designed as a special kind of proving ground to demonstrate the relative efficiency, costs, or structural quality of the various methods of prefabrication. At Indian Head the PBA, assigned the job by FWA, knew only that 650 houses were needed quickly and at minimum cost; that, like much defense housing, they would not be needed on the same site when the emergency ended.

Contracts were negotiated with ten prefabricators, partly to speed up erection, and partly to provide a variety of types. Participating in the construction were E. F. Hauserman Co., Standard Houses Corp., Allied Housing Associates, Inc., Home Building Corp., National Homes Corp., General Fabricators, Inc., Tennessee Coal, Iron & Railroad Co., Lockwall House, Inc., T. Calvin Owens, Harwood-Nebel Co.

Construction types included steel panel, wood frame and plywood, pressed board, Masonite board, steel frame and panel, steel frame and plywood covering.

Modifications in existing designs were made in nearly every case, partly to insure conformance with defense housing standards, but mainly to promote demountability. These minor changes did not seriously affect the prefabricators' normal production methods.

The site plan, by Clarence Stein, represents an intensive application of the *cul-de-sac* principle. Floor plans of the ten house types were reasonably similar. The main factor considered in siting the individual houses was the position of the living room and entrance.

As the work neared completion (the project was occupied in October) one house of each type, chosen by lot, was demounted, loaded on trucks for a 35-mile trip over rough, winding country roads, and then reassembled. Records of the time and cost of these operations, and analyses of method, were made by PBA technicians.

The answer to whether prefabricated houses can become demountable houses is certainly a big *yes*. On the question of whether prefabrication lends itself to greater demountability and significant cost savings over site-fabricated and specially-designed houses, there is still a considerable degree of reasonable doubt.

Prefabrication has had speed to recommend it, and in some cases it can show actual savings in cost. But it is not yet within sight of that rosy future as the solution to the national housing problem predicated by the omniscient editors of FORTUNE in 1930, and by scores of journalists since. Prefabricators now have to meet explicit minimum standards set by government housing agencies.

At Indian Head the prefabricated house appears *en masse*. The effect is mitigated somewhat by ingenious site planning and an audacious use of color, but the entire effect of scores of identical units with minimum standards is generally depressing. Structural standards are not bad, but its inflexibility, its incapacity to make individual adjustments to site and to environment is clearly shown. A community of 650 families requires more than houses in order to live at modern standards. The cost of necessary facilities, which many prefabricators would rather forget, is here thrown into sharp relief.

Demounting costs were as high as $700 and as low as $400. In most cases the figure has been about $500, mainly represented by labor costs. Actual demounting and reassembly usually took one working day, using crews of ten to twenty men. Models with initially low construction costs were the cheapest to re-erect. Very little difficulty was encountered by out-of-state prefabricators in getting houses to the job, and shipping costs were moderate. Few houses were damaged in demounting, and little material was lost.

Houses are conventional in appearance. None of them look "modern" or "architectural." Few even look "prefabricated." What one sees is not novel, except as the results of such experiments as those of the Forest Products Laboratory with stressed plywood panels are new. The most modern and successful types of prefabrication are those incorporating technical advances. These are generally the common property of all builders, prefabricators or not. It is significant that the least revolutionary types of building at Indian Head are among the most successful.

The Potomac Heights experiment does not prove that prefabrication is going to solve the defense housing problem. It does not prove that making all the parts of houses in a factory and assembling them on the site is necessarily more economical or more efficient. What it does prove is that prefabricators can build a house that meets defense housing standards, erect it promptly, and adapt it for reasonably cheap and efficient demounting.

In charge were Louis A. Simon, PBA Supervising Architect; Gilbert S. Underwood, Consulting Architect; H. Arthur Tucker, Associate Architect.

IS HIGH EXPLOSIVE THE GREATEST DANGER?

BY SERGE CHERMAYEFF

The A.R.P. Committee of the Washington, D. C., chapter of the A.I.A. has handed a report to the Institute in which the chairman, *Horace W. Peaslee,* has some very wise and apposite things to say. His views are backed up by a program of working sub-committees which take the form of round table discussions on specific problems of defense; such as the provision of shelters in department stores which are being developed out of plans contributed by local merchants and are being pooled for purposes of analysis, and the adaptation of parking garages for shelters. In this connection San Francisco is mentioned as providing an example of such dual purpose construction to which I should like to return later. Shelters in housing projects, and evacuation camps, which include an examination of the sort of shelters required and the possibility of using them for educational and recreational purposes will be discussed. The committee is further making an analysis of the various precedents supplied by English and French examples as well as such construction by the CCC, Forest Service, NYA, and other American agencies which could be applied to this problem.

Mr. Peaslee says in his report that *"these are specific problems to whet the interest,"* and among his general remarks makes such excellent points as *"what was current yesterday is obsolete today,"* and further, *"if the architect is not to be held accessory to wholesale slaughter if he hands out the wrong prescription"* advises that a more thorough examination of facts be made by physical tests of materials and construction under the new conditions of stress, strain, heat, etc., set up by the latest weapons of air attack, before *"American architects will be satisfied to accept ex cathedra rulings as to right and wrong procedures."* He also dwells on the necessity of studying general factors ranging from such data as integration of planning to problems of blackout, etc. It would seem that the Washington committee is making a comprehensive and intelligent examination of the problem of A.R.P.

Unfortunately, the breadth of Mr. Peaslee's report was narrowed, in the particular summary read by me, to a consideration of actual shelter construction, and the interest was focused particularly in the shelter against high explosives. This ever recurring process of boiling down all shelter problems to protection against direct hits is implied in the editorial title, "Needed: sound working knowledge on bomb shelters," and the further emphasis in the editorial of the architect's function—that of designing shelters. This appears to be the common trend of thought and yet it seems clear that one should differentiate between the technical engineering skill, as applied to a specific shelter, and the planning ability, which can be applied to the problem of civilian defense as a whole. This differentiation has a very important bearing on the contribution of architects within the A.R.P. program.

When shelter construction is considered as a technique it comes specifically in the range more of the structural engineer than it does in the wider range of the architect. It cannot be denied, and indeed I have attempted to stress, that if shelter design is to reach its most satisfactory form it presupposes a close collaboration between both engineering and architectural professions as well as contracting, manufacturing, and administrative forces. What requires emphasis again and again is that the architect's important task is to provide general planning principles which affect specific problems such as shelters, as well as other aspects of A.R.P.

The dual purpose shelter, and the allusion to the San Francisco project, provides a good example for analysis in terms of wider issues than the design of such a shelter.

The underground garage now under construction in Union Square San Francisco, has been erected specifically for the purpose of relieving traffic congestion and to solve a very serious parking problem. If its possible use as an aid raid shelter had been advanced as an argument at a recent hearing for the waiving of priority rules, this would have given an indication that the shelter use was really intended. No such argument was, in fact, put forward. On the contrary, inquiry has revealed that very costly reconstruction would be involved to make the garage usable as a shelter. If one considers that this garage is in the center of the downtown district among large stores, business premises, and hotels mostly of steel frame construction, its possible use as a shelter is very much mitigated. Far less costly and probably more efficient shelters to accommodate a larger number of people could be made more accessible within these various steel structures. Such a procedure would in fact provide more economical protection in this area if the provision of such protection were the objective. It appears doubtful, however, whether the provision of such protection is desirable and would serve any useful purpose.

The particular area involved has a very large daytime population which is drastically reduced, with the exception of the hotels, at night. It seems doubtful that any possible daylight attacks which might be made on San Francisco would affect this particular area to any considerable extent. Bomb-proof shelters in this area would be superfluous. Such protection as would be required in the daytime against splinter from anti-aircraft

or stray machine gun bullets would be quite adequately served by the existing buildings, after minor modifications. The objectives for high explosive attack, such as docks and industry, lie well outside this particular area. The precious loads of high explosive carried by enemy aircraft from distant bases in the case of daylight raids would obviously be aimed at military objectives. If the purpose of the air attack was the dislocation of civilian life and an attempt to panic the population, the most likely weapon to be chosen is not high explosive but incendiary bombs, for a very good reason.

San Francisco appears to provide a very typical case against protection being centered on so-called bombproof shelters. Except for the downtown buildings, civic center, and certain industrial, naval, and military buildings, by far the largest proportion of all buildings spread over a very large area, are of timber. The more effective weapon per weight for the purpose of attack on the civilian population, or for general purposes for that matter, is the incendiary bomb, and these attacks are far more likely to be made at night when, notoriously, defense is less effective.

The predominance of flimsily constructed and highly inflammable buildings is even more true of the widespread industrial, military, and naval zones about the Bay area than it is of San Francisco itself; for instance, in Vallejo and Richmond where highly vulnerable defense housing is closely clustered round ship yards, industry, and so on, often among sunburned hills which even under normal conditions present a constant fire hazard. Here the problem of A.R.P. seems to resolve itself principally into one of providing efficient fire fighting organizations and all that that implies, as well as the provision of shelter for those who might be made homeless over night.

It is perhaps timely to repeat what was said by the ARCHITECTS' JOURNAL in England last February. They pointed out something which had not been foreseen by any authorities in England, namely, *that for every person wounded by a bomb ten or twenty would lose the use of their houses.* In other words, rest centers, temporary housing, repairs, provision for communal services such as crêches, field kitchens, and so on become a major A.R.P. problem. That this aspect of air raids did not become apparent except after prolonged war conditions is responsible for the lack of literature on this particular subject and is reflected in the lack of consciousness of it here. Certainly nothing has been emphatically stated to this effect in the technical press in the United States. If this fact, however, is accepted it reveals all sorts of planning issues in connection with A.R.P. to which the architects might well apply themselves. The ARCHITECTS' JOURNAL makes this point in alluding to the unsung heroes of the desk, particularly the local authorities who, under war conditions, have to deal with an infinite variety of special war time problems, such as A.R.P., in addition to all those normal ones which can only be reduced but never totally abandoned, and which are necessary for the continuation of essential activities. It is not irrelevant to repeat that the work of local authorities could be enormously lightened by architectural assistance in *formulating their A.R.P. program.*

If the conjecture as to the form of attack and its consequences, put forward above, is even partially accurate, this suggests in its turn that a special subject for study might well be an entirely new form of shelter. Such shelters structurally would make no attempt to protect its occupants against a direct hit by high explosives but would be calculated to provide ample protection against the secondary effect of splinter, blast, incendiary bombs, and gas, and be specifically designed to offer refuge to those made temporarily homeless. The accommodation would comprise sleeping quarters, rest rooms, cooking facilities, first aid to deal with shock and minor injuries, and could be placed within easy reach of highways, to serve vulnerable residential areas around industry, etc., at a distance of some miles from these.*

Individual units could be relatively small so that they might be standardized in type for quick, economic erection and so designed that they could have a peacetime utilization. In the temperate climate which continues throughout whole seasons in some parts of the States, as for instance in California, an equivalent could be found in community buildings on the model of the FSA migrant camps, around which evacuees could group their tents and sleeping bags. In either case, the shelter would serve a purpose somewhere on the demarcation line between target or vulnerable areas and invulnerable or reception areas.

The definition of a target or vulnerable area here, illustrates the enormous difference between the United States and most European countries. Certainly in the Middlewest, Northwest, Southwest, and West, population is concentrated in a few points, with large voids between of thinly or totally unpopulated areas, so that even outside of say a five mile radius of a target the country may be classified as an invulnerable, reception area. The type of decentralized shelter outlined would provide for a condition which has few equivalents in England and could be developed not only to serve the purposes already mentioned but might further be valuable as outposts of fire-fighting organizations to cope with the special hazards such as tinder dry forests, grass, and crop lands, created here by climatic conditions.

To sum up, it would appear to the author that the special conditions prevailing in certain parts of the United States require an entirely fresh approach to the problem of A.R.P. and should produce entirely new forms of planning and construction to meet these specific demands. It is suggested that among these the predominantly important type of shelter requiring the architect's attention is not that against high explosive bombs, which is the most widely discussed and popularized item in the whole program of A.R.P., but a series of units developed specifically to cope with the greater problem of the mitigating effects of widespread conflagration.

**Since Mr. Chermayeff's article was written, there appeared in the* SAN FRANCISCO NEWS *(October 23) a story regarding the preparation of architects' plans for a "refugee town" there which can be constructed on a few hours' notice. Already completed under the Red Cross Disaster Relief Commission are preparations for a town of 1000 persons, with sleeping quarters to be grouped around central buildings equipped for cooking, eating, bathing. Local architects worked out the drawings to prepare for disaster or civilian defense needs. Dormitories of 50 beds will accommodate single men, single women, and families. Family space will be partitioned off for privacy. Biggest problem, architects point out, is accumulation of building material on short notice.*

WASHINGTON REPORT

COMPILED BY A. D. TAYLOR OF CLEVELAND

DEFENSE HOUSING

Until the new Lanham Act is passed by Congress, additional funds for defense housing will be very limited. Within the past week this bill has been further considered. Indications are that two important committees are making a careful study of the entire Defense Housing program and, in all probability, final action upon this bill will be delayed until the reports to be prepared by these committees are made available to the Congressional Committees before whom hearings on this bill are being held. In the meantime, pending the date when new funds will be available, new projects are being approved, and Architects, Engineers, and Landscape Architects are being selected, to be ready to proceed under contract, with the preparation of plans, specifications, etc., as and when actual monies are available. It seems likely that an increased proportion of these Defense Housing projects will be done through the USHA (which has been excellently organized from the beginning of the Defense Housing program to undertake this part of the work), and a decreasing proportion will be done through the PBA (to which organization an increased amount of work will be allocated in connection with the new Defense Public Works Program).

It is reported that all of the hospital and school projects with which the Federal Government is concerned will probably be administered through Public Buildings Administration, and in all probability much of this planning work in the architectural and engineering phases of these projects will be done by the present staff of the PBA. There are reported to be approximately $650,000,000 worth of such projects set up and ready for final approval, against available funds approximating only $150,000,000, which indicates that without additional appropriations being made available for this purpose, less than one in four of these projects will be approved.

REHABILITATION

There continues to be considerable Government activity, looking toward the time when funds may be available for a definite program of Urban Rehabilitation. A few cities, where these problems exist in a very definite way, are already beginning to lay the ground work for a comprehensive and thorough program of planning, generally through the agency of well-organized City Plan Commissions. This movement will tend to increase, and should provide much employment for members of the technical planning professions qualified to provide service in this field of planning.

The City Plan Commission is the logical agency through which this preparatory planning should be done, and if such work is to be thoroughly completed, there must be adequate funds made available, through the respective city governments, with which to conduct such preparatory studies. It is not likely that the Federal Government will encourage Federal aid in the Rehabilitation Program to those cities which fail to produce the desired information through City Planning procedure relating to problems of rehabilitation.

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CIVIL SERVICE

The recent examination for architects produced a roster of only 1968 architects in different grades, with the Design Option; 93 architects on the roster for Specification Writing; and 120 architects on the roster for Estimating. This examination was given during the late spring of 1941. Because of the "Priorities Order" of recent date, there has been an avalanche of inquiries concerning the possibility of Government employment. It is estimated that of the total number of approximately 15,000 architects in the United States, between 11,000 and 12,000 are registered, and approximately 4,000 are members of the A.I.A. (including associates and junior associates). If the same examination were to be given today, it is estimated that the eligibility list would be very greatly increased. It is not, however, proposed to set up another architects' examination immediately; but instead, to increase the Civil Service roster of Estimators and Specification Writers through the Engineers Examination (U-69).

The recent Civil Service Examination for Landscape Architects has produced a roster on the Civil Service rolls as follows:

Principal Landscape Architect (minimum salary $5600)	32
Senior Landscape Architect (minimum salary $4600)	75
Landscape Architect (full grade, minimum salary $3800)	115
Associate Landscape Architect (minimum salary $3200)	235
Assistant Landscape Architect (minimum salary $2600)	386
Junior Landscape Architect (minimum salary $2000)	295

This roster has been set up in two parties; (a) those landscape architects who have a college or university degree (75% of the total roster), and (b) those landscape architects who do not have a college or university degree (25% of the total roster).

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PRIORITIES

The recent order concerning priorities will, unless modified in some respects, create a critical condition, particularly in the architectural profession, among those architects whose practice has been largely confined to residential work. To offset this condition it is likely that an increased program of housing, encouraged by the Federal Government, will provide employment for many architects, and landscape architects, as well as Civil and Mechanical Engineers, who might otherwise be unemployed. Many of the reasons advanced for the desire to procure Government employment under these conditions indicate that the reason for unemployment is due to

inability to procure building materials because of the "Priorities Order." All residential building other than the small home will undoubtedly be very much curtailed under the present contemplated procedure. This condition will also react equally unfavorably upon this part of the building construction industry.

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TECHNICAL GROUPS MEET

At a recent meeting held in Washington, and attended by representatives of the American Institute of Architects, the American Society of Civil Engineers, and the American Society of Landscape Architects, it was decided to continue the work of this joint committee in the interests of the technical planning professions.

There are important problems with which these professions are confronted and which seem to require appropriate joint action in order that the respective interests of each profession and its membership may be appropriately protected. These questions concern (a) equitable fees for different kinds of work in connection with the many Government projects, (b) conferences regarding contract forms prepared by Government agencies covering the services of representatives of the technical planning professions, (c) maintaining of an equitable schedule of fees of adequate amount to which the offices in private practice are entitled. (d) a proper standard of fees for personal consulting services, (e) discouraging of any procedure tending toward the adoption of competitive bids for technical planning services, and (f) a joint determination of the ways in which the members of the technical planning professions can be of maximum service to the Government agencies in this emergency program.

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TECHNICAL SERVICE FEES

A procedure is now being followed in the Quartermaster General's office (Construction Division) of negotiating "lump sum fees" for complete professional planning services on cantonments, ordnance projects, and storage warehouse projects. The negotiations are being conducted on the site, between representatives of the Contract Board in the Washington office of the Quartermaster General, and the parties selected to provide the necessary technical planning services. These negotiations are usually consummated in the office of the Zone Constructing Quartermaster, for the zone in which the project is located. A few of these "lump sum" contracts for complete planning services have been negotiated to date, mostly confined to additions to existing cantonments.

The possibility of requesting competitive bids, from members of the technical planning professions, covering complete planning services on specific projects, has not been entirely eliminated. While this procedure is contrary to the ethics and practice of the major technical planning professions, it continues to be under consideration as a possible procedure to be adopted in some of the Government agencies. Such a proposal will meet with strenuous objection from the professions.

The following is a list of the schedule of salaries which has been generally approved by a number of Architect-Engineers in connection with cantonment projects:

Classification	*Min.*	*Max.*
Architectural Designer	$250	$450
Assistant Engineer	250	450
Chief Architect	400	650
Chief Designer	350	500
Chief Draftsman	300	450
Chief Engineer	400	650
Draftsman	150	300
Engineering Designer	250	450
Junior Engineer	150	250
Chainman	100	150
Chief of Party	200	300
Chief Surveyor	250	450
Levelman	175	250
Plane Table Operator	200	300
Rodman	125	175
Transitman	175	250

The maximum salary schedule in the foregoing list includes an allowance to provide for abnormal living expenses and for cost of travel to and from project.

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QMC OFFICES

An increasing amount of negotiations in connection with planning work for army projects may be done through the Zone Constructing Quartermasters Office. The following list gives the location of these offices, and the names of zone architects and zone engineers serving the respective offices:

Zone I
Army Base, Boston, Mass.
Zone Engineer—Lt. Jos. M. Geoghegan
Asst. Zone Architect—Frank W. Crimp

Zone II
120 Wall Street, New York City
Zone Engineer—Robert B. O'Connor

Zone III
Standard Oil Building, Baltimore, Md.
Zone Engineer—Charles H. Stevens
Zone Architect—Louis M. Fisher

Zone IV
494 Spring St., N.W., Atlanta, Ga.
Zone Engineer—Lt. L. W. Pickering
Zone Architect—E. D. Slater

Zone V
232 N. High St., Columbus, Ohio
Zone Engineer—Camden P. Fortney
Zone Architect—Jos. L. Weinberg

Zone VI
20 N. Wacker Drive, Chicago, Ill.
Zone Engineer—Robert I. Randolph
Zone Architect—C. Herrick Hammond

Zone VII
14th & Farnam Sts., Omaha, Neb.
Zone Engineer—William C. Grove

Zone VIII
Fort Sam Houston, Texas
Zone Engineer—Edward N. Noyes
Zone Architect—Lt. Col. Roy Leibsle

Zone IX
74 New Montgomery St., San Francisco, Calif.
Zone Engineer—Harry W. Dennis
Zone Architect—Timothy L. Pflueger (Advisory capacity)

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EMERGENCY CONSTRUCTION PROJECTS

From the inquiries which continue to be received it continues to be evident that many men in the technical planning fields should read more carefully and should make it a point to procure the many releases which are promptly sent from different Federal agencies, either through a general mailing list or upon specific request, concerning defense projects on which there may be opportunities for employment as the "Primary Contracting Individual," or as a salaried employee. These periods of employment are usually of short duration,—from a few weeks to a few months.

October 17, 1941

PENCIL POINTS DATA SHEETS

Prepared by DON GRAF, B.S., M.Arch.

PENCIL POINTS DATA SHEETS

LIGHTNING PROTECTION FOR TREES

Index No.
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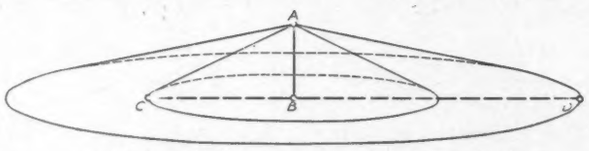
MECHANICAL

PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF



Minimum Cone BC=2AB Maximum Cone BD=4AB.

CONE OF INFLUENCE. The National Fire Protection Association *Code for Protection Against Lightning*, 1934, points out that "experiments have indicated under certain assumed test conditions that a vertical conductor will generally divert to itself all direct hits which otherwise might fall in a cone shaped space, of which the apex is the top of the conductor and the base a circle whose radius is 2 to 4 times the height of the conductor."

Thus a lightning protected tree will tend to protect nearby structures or trees which are totally within the cone shaped space represented above. However, as Dr. M. G. Lloyd has shown, the *cone of influence* is not a zone of complete protection and lightning occasionally strikes within such a zone.

SET 20 NOV 1941

INFLUENCE OF LOCATION. Trees standing alone or above their neighbors and trees along avenues, streams and lakes, are struck more frequently than others.

SPECIES SUSCEPTIBILITY. There is considerable difference in susceptibility to lightning attack among trees of different species. Studies made abroad tend to show the following are relatively free of lightning attack:

beech
horse chestnut
birch
holly

The same studies indicate that the following are struck frequently:

oak
elm
pine
poplar
maple
ash
spruce

As a general rule decayed or rotten trees are greater sufferers from lightning than sound, undecayed specimens. Deep-rooted trees are generally believed to be more liable to lightning injury than those with shallow and widespreading root systems.

PRINCIPLES OF TREE PROTECTION. Air terminals should be placed at the highest point or points in a tree. It is unnecessary to place air terminals on lateral branches where such terminals would fall within the cone of influence. Copper cable may be attached to trees with copper nails—never with steel nails—in order to avoid electrolysis. The use of insulated fasteners is never recommended. Three ground terminals should be provided for each conductor.

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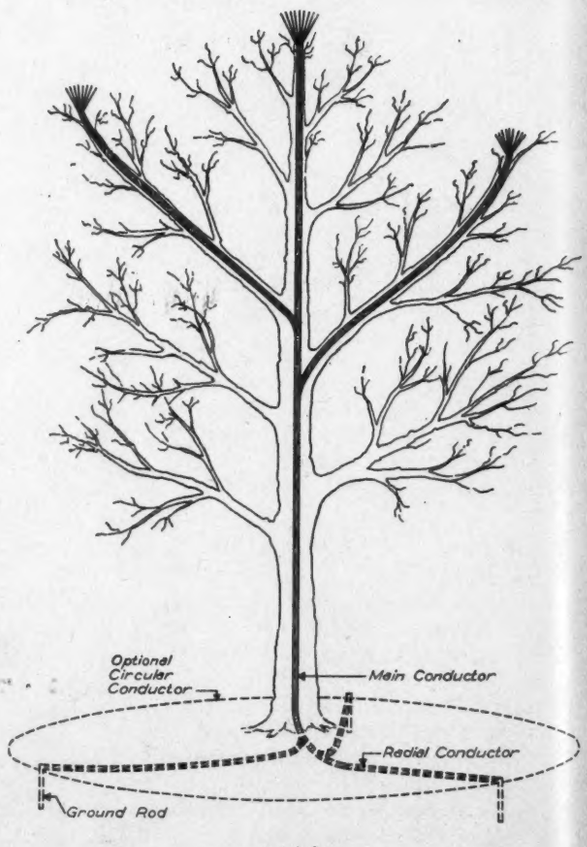
from U. S. National Park Service Tree Preservation Bulletin No. 5

LIGHTNING PROTECTION FOR TREES

Index No.
E 3 q
MECHANICAL

PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF



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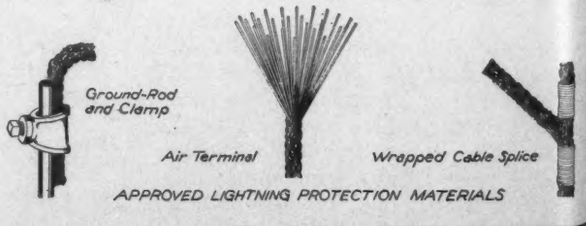


APPROVED LIGHTNING PROTECTION MATERIALS

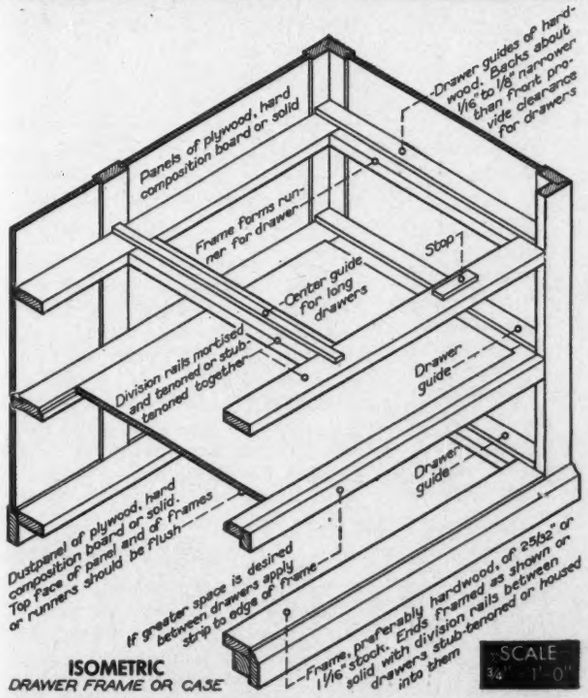
PENCIL POINTS DATA SHEETS

CABINETWORK ESSENTIALS

Index No.
F 18 b
CONSTRUCTION

PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF

SET 20 NOV 1941


Drawer guides of hardwood. Backs about 1/16" to 1/8" narrower than front provide clearance for drawers
Panels of plywood, hard composition board or solid
Frame forms runner for drawer
Stop
Center guide for long drawers
Division rails mortised and tenoned or stub-tenoned together
Drawer guide
Drawer guide
Dustpanel of plywood, hard composition board or solid. Top face of panel and of frames or runners should be flush
If greater space is desired between drawers apply strip to edge of frame
L-Frame, preferably hardwood, of 2½" or 1⅛" stock. Ends framed as shown or solid with division rails between drawers stub-tenoned or housed into them
SCALE 3/4" 1'-0"

ISOMETRIC
DRAWER FRAME OR CASE

Wood selected for use in cabinet work must be thoroly seasoned and should be without defects in any exposed parts. The use of well-seasoned material reduces warping, shrinking or swelling to a minimum. Installation of cabinet work should be left until all the moisture within the building has evaporated and the plaster is dry.

The frame or case forms the containing framework of all typical cabinet construction, whether used to contain drawers or as a cupboard. The successful operation of drawers depends upon the construction of both drawer and the frame in which it works.

The drawing above shows the usual construction of a drawer frame, which should be so made that there will be only sufficient contact with the drawers to support and guide them. The frame is usually mortised and tenoned together with division rails between drawers added as required. In better work a dust-panel is installed in the frame between the drawers. It is important that if drawers are to operate properly, without sticking, that the guides at sides be narrower at the back than the front to provide necessary clearance.

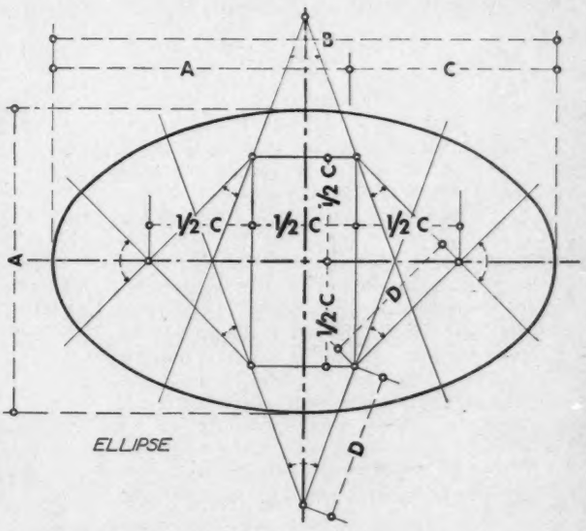
The drawer itself consists of a box constructed in a special manner. Drawers slide on bottoms of side pieces which should be dovetailed to the front, and in better work to the back also. Dovetails should be fairly small with very little taper, fit snugly and be closely spaced to form perfectly secure glued joints. See *Data Sheets* F18c, d.

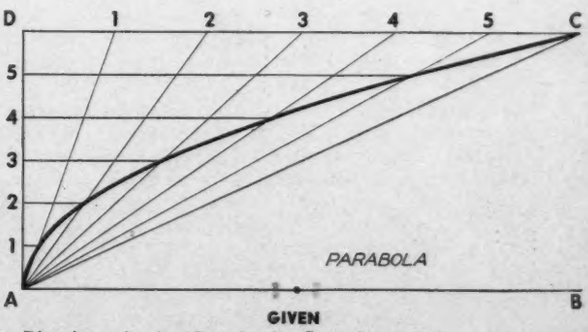
ELLIPSE AND PARABOLA

Index No.
G 2 m
DRAFTSMANSHIP

PENCIL POINTS DATA SHEETS PREPARED BY DON GRAF

SET 20 NOV 1941





GIVEN

Directions of axis AB and point C on the parabola.

TO CONSTRUCT

Draw Line AD thru A perpendicular to AB and a line parallel to AB thru C.

Divide lines AD and DC into same number of equal parts.

Connect A with division points on DC; draw lines thru division points on AD parallel to AB.

Intersections of lines of the same number are points on parabola.

PUBLIC RELATIONS

A FORUM EDITED BY D. KNICKERBACKER BOYD

In preparing for a summary and index next month of the many items in a public relations program which have been covered during the year in this Section we find ourselves surprised at the number to which we have been unable to refer.

This does not mean that if all had been included it would be possible for the profession nationally or in any locality to put them all into effect, even if each one seemed feasible. Obviously some would be more suitable to one region than another, others applicable to the A.I.A. or to some of its Chapters and still others suitable for consideration by State Associations, or local groups. A number of Public Relations Directors are now employed in these various organizations and several of them are our correspondents. One has submitted the definition, given below, of "Public Relations."

It appears that certain "higher-ups" have felt that because a comprehensive program cannot be completely undertaken it is of little use to attempt any part. This is not so! We shall continue to offer suggestions piece-meal in the hope that here and there some one or more of them will be acted upon as a contribution toward an ultimate and coordinated whole, to be later participated in by other units and by many individuals.

This month we introduce another subject, a controversial one, relating to names on buildings, and we continue the discussion on Definitions. We also include a "revolutionary" article by Carlton K. Matson. Your comments will always be welcomed by:

D. KNICKERBACKER BOYD
No. 4 So. 15th St., Philadelphia, Pa.

DEFINING THE ARCHITECT

An engineer subscriber to PENCIL POINTS submits this:

(7) "An Architect should be qualified through natural inclination, training and experience in the Art of Construction to co-ordinate the building needs of his clients with their resources, and with suitable sites, available materials and public regulations, so that durable structures result, which function economically for their occupants and contribute to the common-wealth without offense to Esthetics."

Discussion (by him)

"This definition, like the definition of any idealized noun, is very general and it is not believed that any Architect now or in the past would fit into the definition completely. It would just as well apply to an Engineer if the following substitutions are made: —Engineer for Architect, Technique of Construction for Art of Construction, and Construction for Building.

"I have always felt that there is no categorical difference between an Architect and the Engineer if we accept the wording in the field of construction. Unfortunately the word Engineer has also been used to apply to those practical scientists who design radio, electric machinery, turbines, and any number of other things which were unheard of when the word Engineer and its predecessor Architect were first used."

An official of the A.I.A. offers this —in which the discussion follows the definition:

(8) "The Practice of Architecture is the scientific, aesthetic and orderly co-ordination of all the processes which enter into the production of a good building; performed through the medium of plans and specifications, preliminary drawings, consultations, investigations, contracts, supervision of construction and oral advice and direction.

"An architect is one who is technically skilled and legally qualified to practice the profession of architecture.

"The need of a definition is not only an important matter in public relations, but is equally so from the legal point of view for enforcement of registration laws. In connection with our work on Registration Laws we felt this need tremendously and made an effort to compose such a definition.

"In trying my hand at this most difficult of tasks I did so with the point in mind that the definition must, as above suggested, be suitable from the standpoint of both public and law as well as the profession itself. In addition to that, we know that as a matter of fact many of our architects have elected to follow various branches of the work such as design, specification writing, construction, etc., so far as their personal labor contribution to the job is concerned, and only maintain a directing hand over the balance of it.

"While I make no claim that this definition is, or should be, finally acceptable it was sent to the balance of my committee and drew a 10 to 1 vote in favor of submitting it to the Institute as suggestions, and they are here and now submitted for the purpose of contributing to the discussion on that subject.

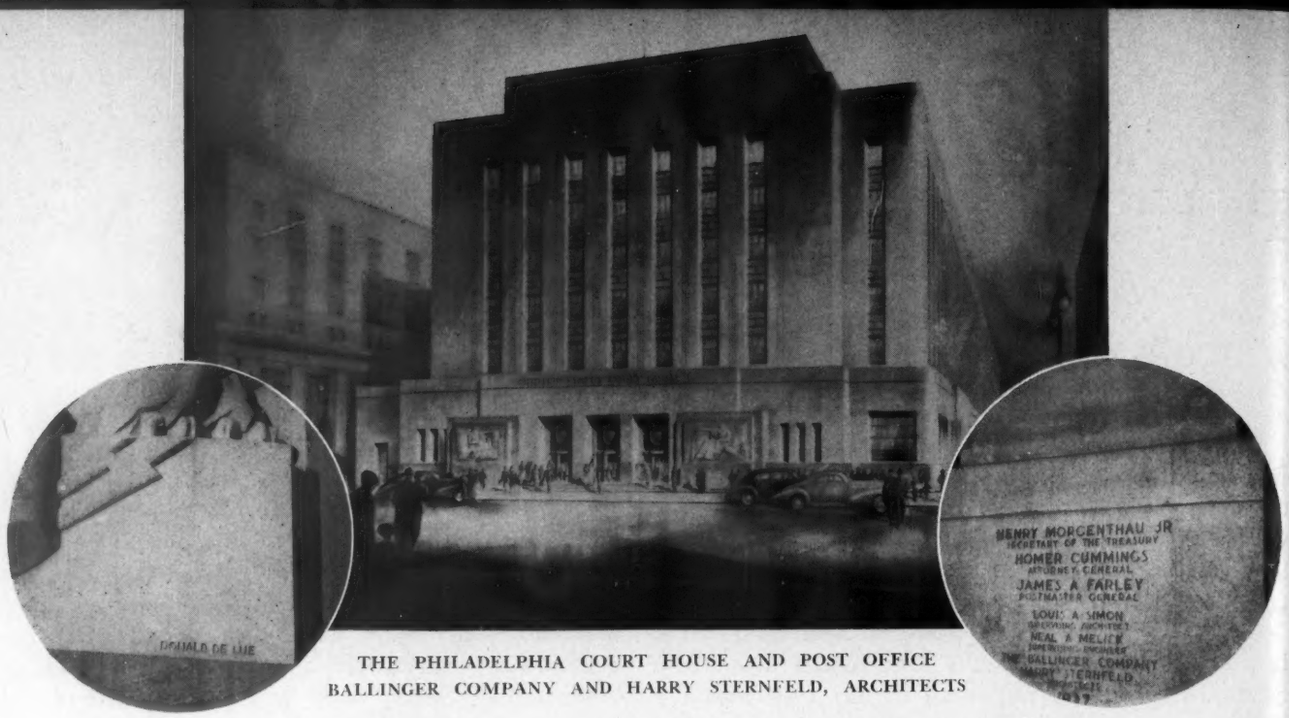
"It is merely an effort to find something that will satisfy all three things —that is, law enforcement, actual conditions of practice, and public understanding, none of which should be overlooked. Since it was submitted to the Institute in 1937 no one has taken up the challenge to try and blast my efforts to pieces nor made an effort to bring on something better. Perhaps your readers can take a crack at it."

AND PUBLIC RELATIONS

(9) "By 'Public Relations' is meant the cultivation of appreciation by official and public groups of the mutuality of interest *arising from the utilization or interchange of goods and services.*

"A public relations program for the architectural profession should aim at (a) impressing public and official groups of the values to be derived through employment of architectural services; and (b) emphasizing the importance of the architect, as a designer, planner and coordinator (i.e. as 'layout' expert) to the community, state, and nation.

"Our definition of public relations was the one used by my colleagues and mentors in England and I believe it is a workable one. They seem to have done a good 'mutuality of interest' job on Anglo-U.S. relations!"



THE PHILADELPHIA COURT HOUSE AND POST OFFICE
BALLINGER COMPANY AND HARRY STERNFELD, ARCHITECTS

NAMES ON BUILDINGS

(1) Under this title, William Orr Ludlow, with that prescience which afterwards caused him to become, for years, the chairman of the A.I.A. Committee on Public Information, wrote an article published in the then *Journal of the A.I.A.* for December, 1928. It is today, in our opinion, so apropos that we quote from it as follows:

"Is the signing of a building by its author advertising? Of course it is. Is it therefore unprofessional? Has it ever been thought unprofessional for a sculptor to place his name on the fold of the garment of his statue or for the artist to place his signature on the corner of his canvas?

"Rather than being reprehensible I believe that this form of advertising is an architect's duty—to the public and to himself. The American Institute of Architects approves it, in fact recommends it, and architects individually quite generally assent to it. And yet it is not usually done.

* * *

"By signing buildings, we help to educate the public to the idea that a really good building is a work of art, not merely a structure, and that its author is an artist as well as a master builder, and therefore signs his work like other artists; we bring public recognition to the architect in proportion to the merit of his building; we let the public know that the authors of good buildings have given of their individuality to their work and have produced something to be proud of; we give the architect a dignity in his own eyes that will make him ashamed of mediocre effort; and lastly, in an age when mechanical process and organization is submerging the individual and stifling individual expression we preserve to the members of our profession a recognition of individuality that will be an inspiration to better art, better building, and a more unselfish service to their fellow men through the profession of architecture.

* * *

"What need we said of the architects of Italy; every guide who shows visitors the wonders of their cities knows their names. And in France, one cannot walk many blocks without becoming acquainted with the names of many architects cut into quoins and cornerstones. Who can help knowing that Charles Garnier designed the Opera House of Paris, for at the side of the building on the *Place Garnier* stands his bust with his name inscribed beneath. And these are but samples of what one sees on every side as he travels about Europe.

"Isn't it then worthwhile, in the cause of public appreciation of architecture and for the standing of our profession, to forget our "diffidence," to overcome our "laziness," and to take the trouble to sign our buildings, as a plain duty to ourselves, the public, and the art of architecture?"

WILLIAM ORR LUDLOW

The Federal Government, in spite of some recent sins of omission with respect to architects' names in publication illustrating their buildings, has a regulation requiring that the names of certain officials, *including the architects,* be inscribed in the stone base, or otherwise placed on the exteriors, of Federal Buildings. In the uppermost illustration is shown a recent example of compliance with this modern custom, together with the name of the sculptor (more deeply cut) of one of the embellishments.

And of almost equal importance, from at least a temporary standpoint, we call attention to the illustration below showing how the public may be informed of "what's going on" behind a sidewalk shelter while a building is under construction. Misguided personal modesty has kept some architects from having their names thus included —with the result that passersby may assume that the building is being erected without the advantage of any architectural service.

Space does not permit us, at this time, to go further into the subject of placards and tablets on the exterior of places of historic interest, in connection with housing developments, on certified homes, and other types of buildings, nor to refer to the more usual custom of bronze plates or stone tablets in the interior of Schools, Court Houses, and other structures. Most of these are in the interest of identifying those responsible for the advantages possessed by the building (or mayhap, the contrary) in each particular case. This Editor hopes that the practice of suitably determining accountability, including the builder, will grow.

CONSTRUCTIVE REVOLUTION FOR ARCHITECTS

BY CARLTON K. MATSON

The architectural profession needs a revolution in the language which it uses to express its function to the public.

Every profession is likely to get in the habit of talking to itself, of using language which has a common meaning only to those who are practiced in the professional jargon. Business concerns get the same habit of talking to themselves about their products.

Is there any verb which expresses the central function of architecture so that it becomes desirable to the general public? "Designing" and "planning" are good, useful words but they need the help of some colorful descriptive language to make architectural service seem alive, vital, and necessary. Certainly the name "architect" should not be abandoned, but it needs new and colorful words about it. It is old and scholarly, somewhat shelf-worn, dulled by academic connotations. To many people it suggests an aloof functionary, an aristocratic professional beyond the reach of ordinary folk.

If you get the words to describe what the architect can do for the construction industry in terms which the ordinary citizen can understand and appreciate, you will probably have the key to what the architectural profession should do to increase its influence and improve its economic situation.

If you can make architectural service mean "save money" to every prospective building owner, the place of the architect is going to take care of itself.

If you can make it mean "You don't have to worry about what's under the surface; your architect safeguards your investment," you'll have something which people will want and get.

The industrial designers may be a bit sick of the term "streamlining," but it did great things for them. It was graphic, colorful; it took shape in the minds of everybody who heard it. It was an important contributor to the glamour which has been built up about industrial designing.

Architecture is the most glamorous profession of all. But it needs graphic, colorful words to give it sales appeal. And they must be practical words which are easily thought of as meaning real, substantial advantages to the prospective client.

This business of language is so much more important than we are wont to think. Action is generated by language, and the kind of action is conditioned by the force and power of the words which are the incitement. To illustrate, it is worthy of thought that the language of the Nazis dominates this total war they have created. The world is making war in their language. We are all using "panzer," "blitzkrieg" and "luftwaffe." Maybe the democracies had better get a language of their own, the language of democratic victory. Maybe when they get the action which leads to final victory, the language of that victory will take command.

But action follows good action words. And in all our relationships we should see that we have a language which talks to other people with persuasive meanings. Perhaps the schools of architecture might make a modern exercise of thinking about the language of the profession in terms of what the world demands today.

What are these schools of architecture doing? Are they orienting young men to take their places in a profession which has much to do with business, which must have much of business about it? Are they fitting young men psychologically to cope with the standardized mass production industry which building has become or is rapidly becoming today? This author doesn't know. He is asking because it seems like a question very pertinent to any discussion of the architect and his public. You can easily do for men starting out in a profession what becomes very difficult for older men to do for themselves.

Most professional men in middle and later life are living in a world which has fooled

them badly. What they planned for themselves no longer exists or has turned into something very different.

And Hitler didn't do it all. What he has done we can't yet calculate.

But we do know that mass production and standardization made over the building industry, along with a lot of other industries, and in the process left some very good architects seemingly benched and stranded. Big houses went begging. Little houses came along. Neither plans nor fees fitted. Lately the government has begun to write the specifications. Again it looks a little like joining a bureau or risking starvation. Priorities for defense building have now thrown a halter over all private construction.

All these external circumstances can't be changed, at least not suddenly. But the old political rule holds: If you can't lick 'em, join 'em. At least, get along with them. "Survival of the fittest" probably means that those survive who are able to fit themselves into their times and environment.

Public relations offer a method and technique of doing the fitting in, of making adjustment to the times and the environment. As much as anything, public relations is a way of thinking; that is the beginning of acting. Such thinking is being stimulated by PENCIL POINTS' Public Relations Department and by such an excellent article as that by *Hal Burnett* in last month's issue. Public relations action, however, must be on a wide and general scale, and it must be persisted in if it is to save the architectural profession for ultimate usefulness.

And while excellent things evidently are being done locally by A.I.A. chapters and independent groups, there is need for a coordinated national effort to publicize architects and their function in terms which will have practical meaning for the whole public. Architects should take command of the thinking which is going into modern building. To do so, they must dramatize their function on a national scale. Maybe the profession needs something like a national trade association, organized for promotion of business relationships. Such would not need to cross up the A.I.A., which has been pretty exclusive, but has nevertheless maintained and protected the standards of the profession. Industries in the construction field are ready and willing to cooperate much more effectively and actively with architects than they are now doing.

It's possible that industrial concerns might give the architects some very effective cooperation on control of the old sore spot of wholesale plans, if the architects offered the right machinery for national action. The soundest way for the architect to control the plan nuisance is for him to make his function of supervision, of putting plans into effect, so practical and generally appealing that the public will realize that it isn't protected unless it has the professional oversight of an architect. Probably the wholesale distribution of stock plans would not have developed if the architectural profession had been promoting its function properly instead of merely resting on its professional dignity.

There is no use exhausting energy fighting a popular trend. It must be met instead of resisted. And for the architectural profession to meet the popular trend toward low-cost residence building and modern factory and commercial construction, it may have to make some very drastic changes in its own mode of operation. The fee system may have to be radically changed. Certainly service will have to be sold in terms of usefulness to the builder of modest homes.

The profession should get ahead of the trend. It should be willing to meet any demand short of the sacrifice of professional integrity. And that will never be called for, because integrity must be at the very core of any practical service which is sold to protect the owner of new construction.

Mr. Burnett is certainly quite right in recommending that surveys should be made by competent men to find out the true nature of public criticism of architects and what it is that the public demands from architects. Again this is going to call for national leadership on a business basis. There must be national leadership, national pace-setting, and national education. Our thinking is too much standardized by modern country-wide means of communication for it to be ultimately effective for sectional professional movements to limp along on their own.

Will the architect support such a cause? Will he tighten up his organization for the long haul? And it will be a long haul; you can't effect any major change in the thinking of the public in any short period.

Each locality can do much for itself. Publicity, speechmaking, classes for the public, all these things and others can be promoted to good effect by competent, trained people on the spot. But construction is a national issue today, and local efforts will have to focus nationally if the public, including government agencies, is brought to make proper, adequate use of the knowledge and equipment of the American architect.